

Vol. LXVI, No. 4

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AMAZING[®]

STORIES



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Michael Swanwick
and
Tim Sullivan

R. García y Robertson

Chris
Robert Silverberg
George Zebrowski
Rob Chilson

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in an organ salvage clinic...
Things went downhill from there!



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STORIES

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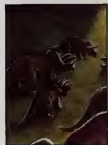
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That About Covers It

Kim Mohan

I like reading manuscripts. In many ways, it's the most exciting part of this job, because I never know what I'm about to get myself into. I think that every envelope I open *could* contain the best story I've ever read, and it's that sense of optimistic anticipation that keeps me going. So what if the story I just finished looking at wasn't quite good enough? There's always a chance that the next one will be a winner.

So I open that next envelope, and most of the time the first thing I see is a cover letter. A simple little note of introduction, maybe including a bit of personal information about the writer. And that's fine; in our guidelines for writers, we encourage people to use cover letters because, as it says there, "we want to get to know you as more than the name below the title."

But the guidelines don't go into any detail about how to compose a cover letter . . . and perhaps they should—because then maybe we wouldn't get letters like this one:

"... The story is about hunters being pitted against each other by a threatening notice that was posted throughout the forest on opening day of hunting season.

"The surprise ending reveals that the note was written by a bear."

Well, thanks. Now that you've told me what your story is about—up to and including the surprise ending—you've left me with no reason to

read the thing. So much for optimistic anticipation.

When I read a story, I have to try to decide if other readers will like it. If I already know what's going to happen before I get past the first sentence, there's no way I can predict whether the idea behind the story is really intriguing, or if the surprise ending is really surprising. I can't imagine leading off every story in this magazine with a synopsis that tells what the story is about and gives away the ending . . . yet I see at least a couple of cover letters every week that do exactly that.

A close relative of the giveaway cover letter is the synopsis that also includes a little bit of hard sell:

"... invariably they fall in love and the future looks promising for them both but a simple twist of fate changes their lives forever and concludes [title of story] in a dramatic way that will leave you wondering and wary whenever you see a pit bull for many days to come."

Just what I'm looking for: a story in which something happens "invariably," and one that will have an effect on me for "days to come." Anyway, I already *am* wary every time I see a pit bull, so why should I read this story? Sorry, no sale.

When a cover letter spoils a story for me, that usually happens because the writer is trying too hard. You don't have to *persuade* us to read your story—we'll do that even

if it doesn't have a cover letter. We want to give every story a fair chance, but sometimes that's hard to do when we know how it's going to end even before we start to read.

Is it possible to write a cover letter that describes the story and is still intriguing? Sure it is. Here's my all-time favorite, which accompanied a story that arrived at this office exactly a year ago:

"[Well-known writer] and I were joking about all the stories an SF writer has to write in his career: the deal with the devil, first contact, Adam and Eve, time travel. I didn't know that I had to write that story, but I did. Later I found out that he meant four different stories. Oh well."

How can anyone *not* want to read the story underneath that letter?

If you're thinking about sending us a manuscript to consider, that's great. But please do both of us a favor: Don't tell us the story before we have a chance to read it. ♦

—

When we published "Klepsit" by John Brunner in the May issue, we should have mentioned that *A Maze of Stars*, the novel from which that story was taken, would be released in hardcover by Ballantine in July. The book is out now, and if you liked the story we think you'll also enjoy the full novel.

Reflections

Robert Silverberg

As if we needed more proof that we are only at the beginning of our astronomical understanding of the universe, along comes the Giant Black Hole of 1991 to give us our latest little lesson in humility.

Whether it really is a black hole of the kind that has been puzzling and fascinating scientists for the past two decades is, of course, something we aren't yet in a position to say. If it is, then our present theories about black holes will have to be drastically revised. If it isn't, then a new astronomical category needs to be invented. What we do know about it, as of mid-1991, is this:

- It's very large.
- It's very dark.
- It's very peculiar.

The object in question is about 300 million light-years from Earth, in a bright galaxy known as NGC 6240. That immense distance tells us right away that we aren't dealing with current cosmological events. The light from NGC 6240 that is reaching local telescopes these days set out toward us in the Upper Carboniferous period of the Paleozoic era, when amphibious life-forms dominated the Earth and the first dinosaurs had not yet evolved. What might be going on in NGC 6240 at this very moment is something that won't make it into the pages of *The Astrophysical Journal* for another couple of geologic eras.

Be that as it may, the data turning up just now—and reported in that journal's April 1991 issue—indicates

the presence of a dark object of colossal size within NGC 6240. The discovery was reported by Dr. Joss Bland-Hawthorn of Rice University, Dr. Andrew S. Wilson of the University of Maryland, and Dr. R. Brent Tully of the University of Hawaii.

They detected the enigmatic dark object with the aid of the 88-inch Mauna Kea telescope in Hawaii—not by direct observation, but by studying disturbances created in its vicinity. NGC 6240, it turned out, is actually two rotating disks of matter, very likely two galaxies that have begun to intersect. The rotation pattern of one of these galaxies appears to be normal; but the other one is a mass of gases whose velocity and direction can only be understood by the hypothesis that they are orbiting some object of unusually great size. How great? The three astronomers suggest that the mass of the unknown object is about 100 billion times that of the Sun—which is to say, about the mass of the entire Milky Way galaxy in which we live. But the space it takes up is only about one ten-thousandth the size of our galaxy.

An object that gives off no light and has great mass in relation to its size sounds very much like a black hole. If it is, though, it's very much bigger than any black hole is supposed to be able to get—some 100 times larger than the theoretical upper limit of size.

The authority for that statement is the British cosmologist and mathe-

matician Stephen Hawking, whose calculations indicate that black holes, as they grow, surround themselves with disks of superheated matter which radiate energy so intensely that no further incoming matter can reach the black hole within. At that point the growth of the black hole ceases.

But the NGC 6240 object has reached a size far greater than the Hawking figures say is possible. The largest black hole that has been identified so far, in the Andromeda galaxy, is at best only one hundred-millionth the size of the unknown zone of darkness in NGC 6240. Which places the newly discovered object in a class by itself—a very puzzling class.

One possibility, of course, is that the supposed limits on the size of black holes are in fact not valid. Black holes are such strange entities that they may be subject to a mathematics all their own. If that's the case, though, then much or all of what is presently believed to be known about black holes would seem invalidated by NGC 6240.

Dr. Bland-Hawthorn offers another suggestion: that the dark object isn't a black hole at all, but a dead or dormant quasar that has picked up energy from the galaxies colliding around it and has begun to return to life. But that's one of those explanations that doesn't really explain very much, since quasars themselves (the name is short for "quasi-stellar radio sources") are

high on the list of current galactic mysteries. They are brilliantly luminous and extremely distant astronomical bodies—*billions* of light-years away, apparently—which radiate light as though they are stars, but don't otherwise behave in any orthodox way. They produce an unthinkable amount of energy, billions or even trillions as much as the Sun, and, like the NGC 6240 object, they seem to have enormous mass in relation to their diameter.

The quasars that have been discovered so far—the first of them was found as recently as 1962—are all located in the farthest reaches of the observable universe. The light they emit has been journeying toward us for ten or twelve billion years, like messages from the earliest days of Creation. NGC 6240, by comparison, is practically in our astronomical back yard, just a trifling few hundred million light-years away. If the dark object in NGC 6240 is indeed a quasar it is by far the closest one so far discovered.

Since very little, really, is understood about quasars at the present time, calling the NGC 6240 object one is like telling us that it is a mystery wrapped in an enigma. But Dr. Bland-Hawthorn hopes that if it is in

fact a quasar and not a black hole, it may help us to understand some aspects of the life-cycle of these remote and bewildering light-sources. "It's just possible," he says, "that quasars don't actually die, but simply become dim when they run out of matter to consume, and rekindle when new matter comes their way." But he goes on to say that it's just as likely that the thing in NGC 6240 represents matter in some entirely unknown form. Black holes and quasars, after all, are nowhere to be found in the astronomy textbook I used in college a generation ago—a book that now seems as hopelessly quaint as today's texts are going to be in the year 2020.

The scientific excitement over NGC 6240 is considerable, and this summer is likely to see a host of new hypotheses emerge. The first step is to check for the presence of gamma rays or X-rays in its vicinity. These are black-hole indicators: interstellar matter being sucked toward a black hole grows warmer, and ultimately is heated to a temperature that induces it to emit gamma rays and X-rays. Telescopes aboard space satellites and the gamma ray observatory that was carried into space by the shuttle *Atlantis* a cou-

ple of months ago will, it is hoped, provide information in this area.

Meanwhile all we know is that there's something big and dark out there 300 million light-years away that is nothing like anything else that our astronomers have yet discovered. It serves, as I said at the outset, to remind us of how much we still have to learn.

And yet—and yet—here we are, a mammalian life-form of this small planet of a minor sun on the edge of one of the myriad galaxies of this universe. As recently as ten thousand years ago we didn't even know how to raise a crop of wheat. Six thousand years ago everyone on this planet was illiterate. We didn't even catch on to the basic principles of electricity until a little while ago. (My grandfather was born into a world that had neither electric lights nor telephones nor automobiles.) And, yes, here we are, aiming our little metal tubes out toward the stars and finding strange things out there, and wondering what they are. Perhaps what's really significant here is not that the universe is still full of puzzlements like NGC 6240, but that we've reached the point of knowing that NGC 6240 is there at all. ♦

Letters

We asked for it, and we got it—dozens of cards and letters from people who took the time to tell us what they thought of the first issue (or two) of the new-format AMAZING® Stories. Here's all the feedback that fits into a couple of pages, excerpted from some of those letters and arranged by category.

We'll use more feedback in upcoming issues—so if you have written us and your comments don't appear here, maybe they'll show up in another month or two. And if you haven't written yet . . . what are you waiting for?

Cover art

The cover was a great choice. It gives just the right impression of the 30's-style SF (or at least the impression of it, since I wasn't there) without being garish.

*Craig H. Barrett
Canon City CO*

I am delighted and impressed by the mag. I have always liked Hildebrandt's work but there is no story to go with the art. Or is there? Will someone write one?

*Hannab M.G. Shapero
Falls Church VA*

The overall impression I get from your fiction is that you are working to reach a break-out audience, one that enjoys good writing. You appear to be aiming neither at the adolescent, nor the lowest/widest-common-denominator genre reader. In which case, I am confused why you chose as your first cover one that screams space-opera sci-fi adolescence.

*Bill Glass
Venice CA*

With only two [issues] out so far, I don't really know what your average cover will look like, but I would suggest keeping them tasteful. If you're suggesting for

the 12-year-old male readership, the more lurid the better. But for those of us who are 30-something, some SF magazine covers are downright embarrassing.

*Pamela Skillingburg
Roanoke Rapids NC*

The cover is too SF-ey. Believe me, the committed SF enthusiasts are few in number. You must appeal to the average reader. The average reader does not want to be observed holding such a blatant cover. It looks too much like a comic book.

*Pierre Mibok
Don Mills, Ontario*

I was quite taken aback by the cover of the first issue. Having never read your magazine before, I had obtained the impression that I would find the latest in adult science fiction and fantasy. Imagine my consternation when upon the cover I find a comely lass tied to a tree, her more than ample bosom thrust forward, waiting to be ravaged by her (presumed) dashing rescuer, as grotesque, bug-like aliens do battle over their luscious prisoner. Much to my relief the old adage "never judge a book (or magazine) by its cover" in this case turned out to be true. I found the stories to be of adult content and theme.

*Douglas G. Matthews
San Diego CA*

Book reviews

I was pleased to see the return of the Book Reviews section. Please retain this column. With the volume of books on the street and the limited free time of this reader, I often miss a few books that I'd otherwise spot in the review column.

*George Ware
Dayton MD*

With such a huge volume and wide variety of sf/f books on the market, a discriminating reader needs some sort of

guide to selection. I find reviews more useful than back-cover synopses—which are far from impartial and can be misleading.

*Mary Anne Landers
Russellville AR*

There is an incredible mountain of stuff out there and the more help there is in locating the good stuff, the better. However, I would like to see you have a female reviewer mixed in there to have a better balanced view of what's good and what's not.

*Ed Milewski
Midland, Ontario*

Novel previews

Another thing I like is the [Looking Forward section] from forthcoming books. I hope they will be a regular feature. Face it, at four-to-six bucks a pop those of us not independently wealthy are going to pick up a lot fewer books on spec. And C. J. Cherryh has so many different styles you're never quite sure which C. J. Cherryh is writing the latest book.

*Eluki bes Shabar
Poughkeepsie NY*

The Looking Forward section I could do without. It reminds me too much of Reader's Digest Condensed Books, which I hate with a passion.

*James M. Gunter
Houston TX*

I personally can't think of anything more annoying and wasteful than printing excerpts from about to be published books. Use the space for another story. Save the money for another story. Don't make me pay twice for the same thing.

*Steve Davidson
New Brunswick NJ*

Your excerpts are long enough to give a sense of both plot and style. Ideally, readers will discover novels that they

otherwise would not likely sample. If AMAZING does attract people unfamiliar with the field, Looking Forward will alert them to delights we -uh- insiders are already hip to.

Bill Glass

Fiction comments

I especially liked "Victoria" by Paul Di Filippo and I'm hoping he's hard at work on a sequel. Cowperthwait and McGroaty make a wonderful pair.

Jeffrey Lyons
Laconia NH

My flat-out favorite story in the issue is Gary D. Douglass's "Extraterrestrial Life on the Mississippi." Rewriting Wells' *The War of the Worlds* is a rich sf tradition. The Mark Twain voice Douglas wonderfully recreates for his version makes it a constant delight to read. Next is "Sunday Driver, Yeah" by A. J. Austin. Austin's obvious *American-Graffiti* pleasure for classic cars and for nose-thumbing youthful insouciance create the joy here.

Bill Glass

I did not like "Victoria," not because it was weird—I didn't find it particularly weird—but because I resented Queen Victoria being portrayed as she was (I loathe rewritten history which lampoons figures of the past.)

Pierre Mibok

I especially loved "The Last Rothschild" by Daniel Pearlman. I have been searching for a story dealing with anti-semitism and racism for a while. Most of the sf/fantasy I read has lily-white, blonde or red-headed characters blithely revelling in their own racial (especially Celtic) superiority. We need more of that sensitivity in the sf world.

Hannah M.G. Shapero

W.E. Scherz is a delight. He probably wears green tights!

Georgia Mae Lubeck
Bandon OR

As for the stories, my favorite [in the second issue] is Sharon N. Farber's "The Sixty-Five Million Year Sleep." It works as both a tough-guy detective story and a hilarious parody of the same.

I also enjoyed Timothy Zahn's "Hitmen — See Murderers." The fantasy concept of finding criminals listed in the phone book is clever and thought-provoking. The author takes an initially intriguing idea, then skillfully maintains suspense and works in complications.

Mary Anne Landers

The stories seem to run to flowery prose which, I'm sure, will have every freshman english (sic) teacher in the country nodding approval. Unfortunately, hardly any have any resemblance to science fiction and are not even very good fantasy. Some come very close to being incomprehensible.

Since I only have one college degree and my IQ barely qualifies me for Mensa, I'm afraid you've outrun me intellectually and so will probably not renew my subscription when it runs out.

Al Yeager
Portsmouth NH

Other stuff

The illustrations are incredible. The illustrations in the old format AMAZING were, in my opinion, a waste of space and ink. The illustrations in the new format AMAZING are eye catching, immensely pleasing works of art.

W.F. Cocker
Courtney, B. C.

I have no problem giving credit where credit is due. I do have a problem with a goes-nowhere, unfocused editorial that takes up more than one page. Pick a subject, Kim! Maybe Pamela ought to insist you give her a little more of your time, and that will force you into brevity.

Steve Davidson

The magazine, in its new format, is well put together, easy to read, and physically appealing. But, the coated stock you use to print AMAZING has an unpleasant odor to it. It's not bad enough to make me stop reading but it is there and I do notice it. It may be because I have an oversensitive nose, or it may be that the stock really stinks and I'm just getting a good whiff, but it's there and I thought you might want to know.

Aaron Goldblatt
Fort Worth TX

Silverbob's piece on the history of AMAZING wasn't bad at all. However, he did neglect to mention by name Ted White, without whom there would have been no AMAZING to revive, or even for TSR to purchase.

He also got his magazine names incorrect. *Amazing's* companion was *Fantastic*, not *Fantastic Adventures*.

He also refers to Gernsback as a gad-geteer; the man was more than that. He introduced a new battery design, the first sending/receiving radio kit small enough and inexpensive enough for home use, generated the concept of fiction with 'hard' scientific content as a

way to introduce science and interest people in it.

Steve Davidson

Your lay-out scheme of starting stories on right-hand pages with a column of text and two columns of art is elegant. It, and the bar at the top of the page keyed to the prominent color of the illustration, make it easy to flip quickly to the start of any story.

Bill Glass

Why is there only one illustration per story? As it is, there is page after page of two-column type, unbroken by any copy, or further illustrations. Why not a few spot drawings? Why not some break in these pages of interminable copy?

Clarke Purdy
Long Beach CA

Bring back the small size that fits easily into a brief case or pocket when travelling. Skip the full-color artwork. Forget about reader letters. What the hell has happened to you people?

George Tomczyk
Rochester NY

Since the printing costs are the same, whether the illustration is large or small, why are all the illustrations past the lead story so small? Expensive paper, expensive printing wasted on a series of tiny, uninviting illustrations. For a few hundred dollars more, they could all have been full-page size—or larger.

Clarke Purdy

Are we ever going to see sf with aliens, spaceships, strange worlds (in outer space, not just the mind) again? As I read IASF, F&SF, AMAZING, etc., I begin to wonder. Try though, (if it's possible) to publish a couple of hard sf stories and maybe some wonky, wonderful space adventures? Please.

Gene KoKayKo
Cambria CA

I know that you have so many manuscripts shuttled across your desk that every possible facet of literature, including good, hard science fiction, is included. Do you think it would be saleable to include perhaps just one such story, plainly marked as such?

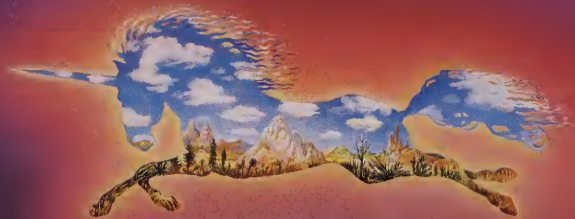
Norman E. Cook
Saint David AZ

Keep printing stories that aren't just Sci-Fi, Fantasy or Horror—but which are also, well, Amazing.

J. Henry Biederman
Ringwood IL

FANTASIES

Michael Swanwick and Tim Sullivan



© Walotsky™

Illustration by Ron Walotsky

After the first twenty minutes, Beverly forgot about what was going on in front of the camera, and the action backstage became infinitely more interesting. She found herself particularly entranced by the way Gabrielle and Sal avoided each other. They moved like cats in heat, each constantly aware of the other's whereabouts, keeping to opposite ends of the set when they could, and squeezing by with elaborate politeness when they could not. Sal was crammed into a corner by the toilet, and Gabrielle had positioned herself beside the coffee machine. The little gofer responded by stretching out his legs to block access to the john and raised a comic book to his face.

"Bev, darling, don't crane around like that," Calvin said between takes. "The chair is old. It squeaks and that annoys me. If you don't like the way they're playing your script, you can always close your eyes."

"Sorry."

There was something wonderfully surreal about this klieg-lit suburban living room burning bright in the heart of an old cereal factory, and about the way the tech crew lurked silently about in the shadows. It was the *nouvelle vague* version of the *Inferno* with Calvin—triangular face pulling down to a scrawny goatee, deep circles emphasizing those sad, infinitely cynical eyes—cast as the Director. Lord Weary himself, Beverly thought. And we are all his attendant spirits.

They were filming the "I hate men" scene MOS ("What does that mean?" she'd asked on first seeing the term scrawled on the shooting script; "Mitout sound," Calvin had snapped like a Prussian general, and she still wasn't sure), soundtrack to be overdubbed later. So there was soft background chatter about carburetor troubles and roof canal work among the crew, while Calvin orchestrated the human interaction from his chair behind the camera.

Gabrielle wouldn't join Krystal and Bambi until the end of the scene, so she had little to do but pursue her tense little vendetta. Sal had retreated into his stack of comics, lips moving ever so slightly as he turned the pages, and she waited for him to look up so that she could smile dazzlingly at him. Every now and then Sal forgot himself, and his head would start to rise and turn toward the coffee pot, like a plant yearning toward the sun. But he always remembered in time to avert his eyes. It was excruciating to watch.

Finally, Beverly could take no more. Shoving her clipboard under her arm, she got up and strode to the coffee, poured a cup and brought it to him. "I didn't know whether you wanted sugar or Sweet 'n Low, so I brought you a couple of each. There isn't any creamer."

Sal took the cup, surprised. "Oh, hey," he said in a papery voice. "Uh . . . thanks. You're the writer, aren't you?" A silver bracelet dangled from a gentle brown wrist. A diamond stud graced one ear. He looked ungodly young, though she knew Calvin was too canny to let a minor on the set. "So am I. A writer, I mean." He grinned nervously, revealing bad gums and missing teeth. "Hey, maybe you could help me, I've got this great movie, it's not like, you know, in written form or anything yet. But it's got this really neat . . ." Smile fading, face tightening,

he stared wonderstruck over Beverly's shoulder. She turned to see what he was looking at.

The face of an angel and the calm gray eyes of someone who wants to hit you. Jeans faded a robin's-egg blue caressing long legs and taut buns. Wide shoulders, muscular arms, sweet smile. God's own assassin.

Calvin heard the rustle of surprised reaction and swiveled in his chair. "Well, look who deigns to finally show up," he said. Then, "Oh, shit—cut! Bambi, you're supposed to be performing, remember? Is that too complicated for your fluffy little brain?"

"But you said—"

His face became a perfect mask of suffering. "I will not be drawn into this argument. Take fifteen, people. Krystal, you stay here, I need somebody to light. Just lie there like daddy's good little poodle, okay?"

"You're such slime, Calvin," Krystal said in an elaborately bored voice. The cameraman hovered over her, taking readings. Maurice was a big, solemn-featured black man, with the gentle look of a born brawler. Beverly had heard that he used to be a union goon and had once beaten a policeman unconscious.

"Thank you so very much," Calvin bowed deeply, the sad half-circles under his eyes disappearing in shadow, reappearing again as he lifted his head. "I can't tell you how much that means to me, coming from a star of your stature."

The newcomer waited calmly, an island of self-possession. "I came by to pick up my script."

"Sweet Jesus, but there's professionalism for you!" Calvin stood, sweeping out a hand. "People, allow me to introduce the newest addition to our little family, James Pagano. Mister Pagano is a graduate of SUNY-Binghamton and has appeared in community theatre and summer stock on Long Island. He has played Shakespeare and not disgraced himself. He has taken on Ibsen and won. Now he brings his finely honed artistic sensibilities to the aid of our production." He rocked back on his heels, hands behind his back, smiling. Waiting for a response that did not come.

Gabrielle held out a script. "Thanks, Gabby," James said carelessly. He rolled the script into a tube, stuck it in a hip pocket and turned away.

He was amazing. Beverly leaned against Sal; automatically he put an arm around her waist. Together they watched as the apparition opened the front door and stood framed in daylight. The door closed, and the studio was suddenly gloomy and chill.

"He's beautiful," Beverly whispered.

"Yeah," Sal agreed. "But a real bastard. You watch out for him."

That afternoon, they shot the introductory dialogue for the morning's scene. There was an almost tactile pleasure in watching Maurice move with a dancer's grace, swooping down on the pair on the couch for a tricky traveling shot. But it was still Bambi and Krystal delivering the lines, and Bambi in particular was so bad that Beverly had to shut her eyes. She had written the characters as young gods, bold and fearless, without shame

or regrets. In her imagination she could still hear the words as she'd intended them to be spoken.

Calvin gazed after Beverly with glum satisfaction as she slipped away. She went down the stairs at the back, rolling up her leather cap and using it to prevent the fire doors from clicking locked behind her.

It was cool outside. A recent rain had wet down the pavement, and stolen its heat. The alley was a patchwork of red brick and granite block, with incursions of cement and macadam where it had been torn up for routine repairs. There were even a few of the original blue-glazed bricks left, scattered among the dried mud puddles and fossilized dog droppings. She could smell rancid cooking oil, discarded from the Thai restaurant's back door.

The street couldn't be seen from here. The alley butt-ended into a blind wall at one end, and doglegged into a parking lot at the other, making a kind of small, ugly haven in the middle of the city. Beverly pulled a crumpled pack of Kools from a workshirt pocket, straightened one slightly, lit and inhaled.

She had no right to complain. She'd gone down to a Times Square grind house and sat through three films the day Calvin had put the challenge to her, and then thrown together the first draft of her script over one coffee-fueled night, more as a joke than anything else. She hadn't expected him to *buy* it. But once he had, she'd worked like a sonofabitch to make it a good movie, light and humorous where possible, and inventive where not. There were hierarchies in art, she believed, and even at the bottom—restroom graffiti, say—it was possible to produce work that was good of its kind. You could write a compelling, even enthralling graffito, scatological and witty, something that would freeze the reader in the moment of reaching for the toilet paper and imprint itself on the brain forever. She had busted her hump to write a good piece of fluff.

It hurt to watch them trampling her puff-pastry of a fantasy with their great, filthy feet.

There was a clip-clop noise, like an approaching police horse. Beverly automatically glanced toward the parking lot, but the sound was coming from her right, where three trash cans leaned against featureless brick. She turned back in time to see the bricks waver and bulge as a unicorn stepped through the wall.

It appeared calmly, with assurance, the horned head lifting slightly as it emerged, a fetlock noisily kicking over a trash can. It stepped into the alley, as big as a Clydesdale and twice as real. Tin cans and bottles rattled about its hooves.

She dropped her cigarette.

It turned toward her, dancing sideways, muscles moving smoothly under piebald hide. Thunder made flesh. Its horn was a sliver of volcanic glass, a hole into darkness, the anti-moon. When the creature tossed its head, the air whistled. Beverly shoved herself back against the building, trying to fade into the wall. She caught a musky whiff of wilderness, of crushed grass and the rank, heavy scent of living sinew. The unicorn was so close that she could have touched its heaving, sweaty flank, had she dared. Heat radiated from its body.

It turned a wild, pitiless eye on her. The hairs of its mane crackled with electricity, lifting slightly as if it were underwater. The tail twitched angrily. The creature's beauty was almost a physical blow.

No, she whispered, not aloud. For a perfect crystal moment, she hung motionless and timeless, suspended in dread.

The great bearded head swung up, and the creature snorted: an immense sound, deep and universal as a lion's roar. A reverberation passed through her, and her body shivered in sympathy. The beast bared teeth in a mouth large enough to bite off her head, if it wished, and lowered its obsidian horn, as if to impale her. Then, contemptuously, it turned away, leaped—

—and was gone. The alley was empty again, dirty and narrow, overseen by bricked-over windows. There was a distant susurrus of traffic, as quiet and unceasing as ocean surf.

For a time she just stood there. Then she went back to the set.

Inside, the air felt different: closer, cloying. They were burning joss sticks for the harem scene. Beverly saw that Sal was setting up, scattering pillows about the set. Calvin oversaw him, now and then reaching forward to twitch one into a better position. "Calvin," she said, "what would you do if you saw a unicorn?"

"I've seen a unicorn. At the circus. They make 'em out of goats, saw the horns off when they're young and regraft one right here." He tapped the center of his forehead, winked knowingly. "Don't let the bastards take you in, kid."

"No, I mean a real one. Only not like one of those dewy-eyed, wimpy things they sell pictures of in Woolworth's—a real animal." Already, it was fading into unreality, like a Polaroid left out in the sun. She was sorry now she'd said anything. She stumbled to a halt. "Big thing . . . like a horse."

"I'd put it in the movie. It's got to do a better job than some of the jerks I hire. Hey, Bambi! You'd work with a horse, wouldn't you?"

Bambi was wrapped in a chintz housecoat, knee to chin, cutting her toenails. She was wearing harlequin glasses now. Without looking up she said, "Not for what you're paying me."

Beverly paid little attention to the exchange. A unicorn, she thought. I've just seen a unicorn!

Down the road at the Algonquin Diner, the crew had a regular lunch table where they swapped shop talk and character assassination over burgers and fries. Beverly took a stool at the counter, so she could be alone with her thoughts. But Gabrielle came and sat down beside her. "Just coffee," she told the waitress. "And a salad. I have to watch my figure." Then, to Beverly, "Did you see the way he treated me?"

"Uh . . ."

Gabrielle took a cigarette from her disco purse and jammed it in her mouth. Withdrawing a disposable lighter, she lit the thing, all in sharp jerky motions. "I mean, I

got him the job. He was in the White Horse, down in the Village, waiting for someone to buy him a drink, and I saw him and I thought, Jesus, he's so pretty he's just got to be gay. Know what I mean? But I saw him and it was just like: Wow. Have him washed, stripped and sent to my tent. So I bought him his drink and everything, and I listened to his goddamned complaints about his career, and I told him Calvin had an opening for the leading man, right? You'd think he'd be grateful. But I got him back to my place and fixed him a drink, and then I went into the bathroom to slip in my diaphragm, and when I come out he's gone. The fucker. I mean, he must've known what the score was, but he just ditched me. And ever since then he's been giving me this big-sister routine and everything, you know?"

I don't want to hear this, Beverly thought miserably. "You're talking about James, aren't you?"

"What's worse is that everybody knows. That was right after the cast party for *Pretty in Pink*, and Joan and Rick and Sal and I went out bar hopping. So the next day they all wanted to know how I made out and everything, and I said fine, you know. Just great. But look at how he treats me, they can see I was lying." Gabrielle sucked deep on her cigarette. "You think maybe if I do a good job with him on camera, he'll get interested?" Gabrielle asked. "What do you think? I get this mile-wide but just thinking about him."

Then, mercifully, the waitress came back with Gabrielle's salad, putting an end to her monologue.

Wednesday afternoon, as was traditional, Calvin sent out for Chinese. When Sal staggered in with three enormous paper bags, the director accepted the ritual applause, and then the cast and crew converged on the food. Slightly bedraggled, Sal emerged from behind a scrim with a handful of little cardboard boxes, and brought them to where Beverly sat reading. "This is *wor shu op*, and this is *moo goo gai pan*, and this is, uh, I think it's beef. Here's your fork, I forgot to get chopsticks." He knelt beside Beverly. "Listen, let me tell you about my movie."

"If you have a movie idea, the one you ought to be pitching it to is Calvin." She quietly set her paperback face down on the floor. It was a garish collection of pulp fantasies she'd found in a used bookstore near her apartment, and she was a little embarrassed to be seen reading it. She'd bought it for the introductory essay on unicorns. But for all his baroque elaborations on sleep-thorns, orangers, rhinoceros horns, narwhals, nuns and someone named Charles Fort, it was clear that the author had no personal belief in unicorns, and had no practical advice to offer her.

"No, I mean a *real* movie. It's kind of like *Star Wars*, see, only with no machines or stuff. See, there's this hole in reality—"

"Why?"

"Well, because they need it. The people who go through. They're trapped in our world, and to them it's like Hell, you know? Because they belong on the other side."

"Mmmm."

"So there's this gateway, see . . ." He talked all through lunch. His plot was naked wish fulfillment, and Beverly found it a little embarrassing how obviously Sal identified with the princess. He also felt some ambiguity toward the villain, a large, dark and handsome monster that Beverly didn't for an instant believe actually needed to kidnap the princess. A simple phone call would have gotten him anywhere he wanted with her. By the time he said, "What do you think?" Beverly had heard enough.

"Sal . . . you do realize that what you have isn't a plot?" He looked at her. "It's just the machinery for a plot. You take up all your movie getting your characters into this magical other land, right? But there's no story there—the real story is in what happens when they get there. How they interact, how this changes them, see? Everything you've described should be boiled down to a prologue—five minutes at best. The way it is now, nothing actually happens. You've got to find the real story."

He dipped his head, lightly kicked a table leg. "Shit." Then, earnestly, "No, there's a real story there. I mean, it could be great."

"Get something down on paper," Beverly said, "and I'll take a look at it."

The sun bloomed in his homely face. "Hey, really? You mean—that would be great."

Joan, the soundperson, took off her earphones and said, "Calvin, I've got extraneous noise on that take."

"Oh, bloody hell, I didn't hear anything."

"Come listen." Joan held out the earphones, and he shook his head.

"Let's reshoot, kiddies! This time, let's not screw up, huh?"

Krystal put down a paperback romance. "I don't see why you bother, Calvin. Nobody's going to care if the production values aren't MGM-perfect."

"So far as it goes, that is absolutely true," Calvin said smoothly. "However, reshoot we must. I may be a mere plumber of the cinema, a simple engineer of human hydraulics, but I have my standards yet: The camera must stay in focus, the cattle are not allowed to mug at the audience, and the soundtrack must be clean. It's little enough to ask, God knows."

A current of electricity shivered though the air, too slight to notice if you weren't waiting for it. Beverly reared up her head, as if feeling for a scent. Something Special was nearby. She could feel it. As quietly as she could, she eased out of her chair.

"And just where do you think you're going?" Calvin asked sourly.

"Outside. I . . . uh, really need a cigarette break."

"Permission denied. If I have to sit through this, everyone does."

Bambi slumped on stage. "Where's Sal?" she asked. "I'll need a fresh cucumber for this scene."

At first Beverly didn't recognize the voice on the phone.

"It's Sal," the thin voice said. "Look, I wrote some stuff down. Could you take a look at it?"

"Well . . ."

"Great! I'll be over in ten minutes."
"Hey, whoah, wait!" Beverly didn't want to deal with this right now. Critiquing Sal's semiliterate scrawls would require the utmost diplomacy. "I was planning to hit the sack early tonight."

"I won't take up much of your time, really. I mean, I got something real important later, only . . ." That desperate, I'm-already-lost tone of voice heard at three in the morning over the Suicide Hotline. "Please?"

Trapped. "Okay, Sal. Come on over."

Five minutes later, Beverly asked, "How'd you get over here so fast?" as she unlocked the door to let him in. "I thought you lived in Brooklyn."

"I do, but I called from a diner on Fifty-Eighth. My roommate needed some privacy this evening."

"Well, have a seat. Can I get you a beer?"

"No, I mean, that's really nice, but you know, no thanks." Sal shoved a rolled-up sheaf of yellow paper at her and perched on the edge of her swaybacked Castro Convertible. "I took your advice and blew off the beginning. This all takes place in the, you know, other world."

"This is it, huh?" Beverly smoothed out the paper and with mounting dread began to read the hand-printed pages. For the next two hours Sal sat watching her, wincing at her every shift of expression, cringing whenever she sighed. Gritting her teeth, she did her best to ignore him.

At first Beverly was sure that her worst fears were being confirmed. The story was crude, an amalgam of clichés generously spiced with grammatical errors and unintentionally funny misspellings. And yet . . . There was something to the manuscript that made such refinements seem secondary. Sal had somehow invested this claptrap about interdimensional adventuring with real feeling. There was so simple a sincerity apparent in every line that she could not stop reading this garbage. And he really had, just as he had said, rethought the whole thing. All that plotting in one day! In terms of sheer, raw event, he'd manufactured more story than Beverly could have used in a year. All in all, there was something here, something primitive, something that derived its strength from its very artlessness. Be damned if she knew what it was, though.

After the treatment were twenty pages of the "novelization" of the proposed movie. She scanned the first page—enough to know he'd never beat Joyce Cary at his own game—and laid the bundle down. "Sal," she said, "this is pretty good."

His face unfolded from anxiety into gratitude, a child's robot toy transforming one primary emotion into another. "Hey. You really think so, Bev? Really? I mean, like, you know—really?"

"Well, I wouldn't mistake it for one of Larry Kasdan's scripts, if that's what you mean. But it shows promise. There's actually a story here. I don't know how to advise you, though. I mean, I couldn't write something like this." She knew better was why, but why mention that? "So maybe my advice isn't what you really need."

"Wheeeow!" Sal flung his arms out and fell flat against the bed, staring up at her ceiling. "I'm a writer, I'm a writer, I'm a writer!"

Beverly couldn't help laughing. "Well, I hate to rain on your parade, Sal. But you'll have to learn little things like grammar and punctuation and format. I'll lend you a book to get you started on that technical stuff." She snagged her Strunk and White off the shelf. "And buy a typewriter and learn to use it! Believe it or not, nobody is going to look at a handwritten manuscript. Nobody!"

"I'm a writer," Sal said happily, goofily. He glanced sideways at her alarm clock. "I'm a—oh, shit! I'm late. My roommate is going to kill me!" He leaped up and ran for the door, stopped and came back for the book. Impulsively, he kissed her cheek, the lightest of pecks, and was gone.

There was so much more she should have told him: That if you want to be a screenwriter, talent isn't enough. You have to move to Los Angeles and write script after script and send them out to the agents and keep on sending them out, knowing that they'll never be produced, that they're just the bait to convince an agent you're worth taking on. And that once you had an agent you could return to writing screenplays that would never be filmed, in hopes of interesting Someone Somewhere who had need of a writer for something else entirely. There was so much he had to know, and it was almost all of it bad news.

So why did she feel so good?

The next morning, Sal came in to the shoot late, his face covered with bruises. He moved stiffly, and wouldn't look Beverly in the eye.

"Poor sonofabitch," Calvin said when Sal went off to unlock the properties closet. "He's got this thing for rough trade. Goes out and gets himself fisted by these apes in prehuman form and cries because they never call him afterward. Never seems to realize it's gonna happen, either. It's always a surprise for him. One of them is gonna kill the kid one of these days. He's just the victim type, they're going to eat him up."

Sal, returning, caught the tail end of this. "It's not like that at all," he muttered. "My roommate and I just had a little argument."

"Hey," Beverly said. "You didn't get into trouble on my account, did you? Staying out too late?"

"It wasn't your fault. He's an artist, that makes him very high-strung. I should have been more considerate of his feelings."

"Oh, Sal!"

He hung his head. "I guess I just don't have good luck with men."

It wasn't so much Sal's face that made Beverly want to comfort him. The bruises would heal. It was the wounded heart that shone through those big, vulnerable eyes. "I don't have very good luck with men myself," she said gently.

"Yeah, but at least you're a writer, you know? You've got something to hold you up when you feel like you're drowning."

"But you're a writer, too, Sal. You've got . . . uh, a really cosmic way of looking at things."

"Do you think so? I mean really?" He brightened.

"Yeah. Yeah, I really think so, you know. Yeah."
"Sal, go dress the set," Calvin said. And when he was gone, "Well, Beverly, I've underestimated you." He favored her with an unclean smile.

"Calvin, just what is the problem with Sal and Gabrielle?" She hoped that Gabrielle would leave the kid alone today.

"Queens and princesses will have their fallings-out, *ce n'est pas vrai*? They were bosom buddies until the end of our last flick. Then Gabrielle called Sal a faggot, and he called her a neurotic twitch." Calvin put a finger alongside his nose. "Many a true word is spoken in jest, eh?"

His smug cruelty infuriated her. "You really make me angry, Calvin. All this shit you think is so funny is nothing of the kind. It's all inutterably sad."

"The monkey's kiss, the ape's embrace." Calvin leered. "That's Huxley. 'The lecher's prurient touch. And do you like the human race? Oh, no, not much.'" He put an arm over her shoulder, shook her slightly, in a comradely fashion. "Bev, my sweet, you're going to have to rewrite the script. I need pages thirty-nine through forty-eight by tomorrow, if you can manage. They don't have to be any good."

She raised her clipboard defensively, flipping to the pages in question. "What's the matter with them? That's some of my funniest stuff."

"I know, and I'm sorry, but look, you can see for yourself that Bambi can't act. She can't even say 'good morning' convincingly. So you're going to have to rewrite it without her having to say anything clever, okay? Just like yes-and-no sort of stuff. Maybe something complicated like, 'Ooh, that sounds like fun,' or something. Don't overdo it, though."

"But—"

"I know what you're going to say." He looked pained. "You think I don't know? I used to be just like you, Beverly. I was young and ambitious, and I certainly wasn't going to spend the rest of my life doing *this*. It was just a way of getting a foot in the door. I was going to make real movies, Hollywood movies, it was only a matter of time. I was going to be an *auteur*. Everybody in this business is like that, you know. We're all failures of one kind or another. Maurice is a failed dancer, Joan's a failed singer, even Gabrielle was going to be a real actress when she started out. But we all needed the money, and the money was easy. So we all stayed for one more day. And another. And then another." He was hugging her, in that disgustingly sincere way she hated. She could smell his breath, a suggestion of rotting meat in it; perhaps there was something caught in his teeth. He was repulsive, and at the same time plausibly, slyly persuasive. He was comfortable with a cynicism so vast it made her feel like a child before it.

"Tell you what, though, it's not a bad life, really, once you admit that you've failed. The money is good, it's steady, and, admit it, the work is easy. All you have to do is accept what deep in your heart you already know. You're never going to write anything that'll last, because you're a failure."

"I'm not a failure!" She believed that, she really did. But it was harder to believe than it used to be.

"We're all failures."

"How do you explain James, then?"

Calvin missed a beat for the first time in the conversation, and then said with scorn, "James is an asshole."

But she had him, she could tell by the annoyance he could not keep off his face. "I'll do your rewrite, but I'll make it good. You'll see."

"Sure I will, kid."

"—in total awe of the man, and I was overacting dreadfully. Finally Burton took me aside and told me a story about when he was just starting out, when he affected a style with the most extravagant gestures, which he could not be talked out of, until the day he was appearing in *Henry V* and delivering these wonderful lines: 'Once more unto the breach, dear friends, once more; Or close up the wall with our English dead!' Well, you know how it goes. And at the climax of the speech, he thrust out his hand to Gielgud, and Gielgud put a roll in it!"

The Round Table cracked up with laughter. But there were undercurrents in the laughter, and Beverly unobtrusively looked at all the cast members present, trying to break it down. There were some who hung eagerly on James's every word, and others who looked away, would not meet his pale blue eyes, and left a limp, guilty fringe about their laughter. By his very presence James awakened a hunger in them all that most thought they'd suppressed.

Gabrielle sat at James's left, basking in his reflected glory, pathetically confident that his mere presence proved he was hers. She slid a cigarette from her purse, held it to her lips and turned his way: "Light?"

He ignored her. After a wait extended the merest instant too long for anyone to pretend they hadn't noticed, she reached down to scramble out her lighter.

"Hey," Sal said. "That wasn't very nice."

Dead silence. James turned slowly his way. Those fine features skewed with perfect weighted irony. "What are you," he asked slowly, "the good etiquette fairy?"

Laughter gushed over Sal's reddened face. The timing, the delivery—James had real comic talent. So far as Beverly could tell, she was the only one who didn't laugh at him. Even Gabrielle laughed.

From then on, James showed up for lunch every day, and presided over the table. Since Calvin spent his lunch hours scanning the rushes, it gave the days a schizophrenic feel as they vacillated between the two poles of personality. And every day Gabrielle fell behind to pick up James's check.

There was a good show on the tube, so Beverly didn't get started on the revisions until nine o'clock. It was midnight before she was done, and then she felt weary and beat and ready to sleep. But she scrolled another sheet of paper into the old typewriter. "Okay, this is for Art," she muttered, and typed midway down the page:

"The Dwarf"

This was one of a series of vignettes she planned to

call *The Sleep of Reason*, after Goya's etching, which she envisioned as a fractally linked progression of grotesques and dark visions. She began by describing an early medieval family, their hopes and situation, and how on the birth of their third son they placed the child in a jug. There was a market for court freaks, and on his full growth the jug would be broken and the artificially malformed child sold for the amusement of the nobility. This was a conceit with potential for ironic resonance with contemporary society.

The first three pages went well, cold and spare as post-modern Poe. But then at Eudoric's twelfth year, as he stared from the corner at the misshapen lives of his family, hopelessly lusting for his near-idiot older sister, the prose went out of control. Eudoric's agonized self-hatred erupted in a geyser of adjectives, syntactically tangled and clotted subordinate clauses snarling in mid-air, destroying the fabric of the story, suggesting without ever arriving at meaning, until out of its dark swirling center there emerged a leather-winged monster. It was real. It might be the product of the child's madness, but it had actual tangible existence, and it roared up the chimney and out into the village night to feed.

The New Yorker could never buy this. It was too ugly. But then again, hadn't beauty been discredited as middle-class sentimentality? There was something here. She determined to follow it through to the end.

She got another thousand words down before she could no longer see the page, and staggered to bed.

James leafed through the revised script. It was his first day up, and everyone was curious to see how he would perform. "This isn't half bad," he said. "I think the writer should take a bow." Beverly stood, curtsied lightly. "It's a rewrite of *Mandragora*, right? Machiavelli. Very clever."

"Machiavelli for morons, yeah," Beverly said. Even Calvin had missed that. Beverly allowed herself one look at him, but he was facing away from her.

James glanced up toward the gaffer at the lightboard. "Make me look good, okay?" He grinned and smoothed back his hair. Then he strode onto the set, doffing his gown and tossing it unerringly behind him. Leaving Beverly feeling as stricken as a Mexican peasant vouchsafed an apparition of the Virgin.

James was every bit as good as expected, and somehow that made it all the worse, because he was playing opposite Krystal, who could almost act. In his presence she was just awful; the contrast killed her. And just as it seemed the scene could get no worse, Bambi made her entrance.

They reshot the same scene time after time. Only James was any good. He walked through his lines, with the cold disdain of an actor who can perform in his sleep, weighted down by amateurs. It wasn't that he despised the others. He simply considered them beneath his notice.

At lunch, James once again dominated the Round Table. Beverly had found another paperback about unicorns, and again she sat at the counter to get away from the

others. Gabrielle sat beside her, went through the cigarette lighting ritual, stared ahead into space.

Then she said, "I was kidnapped by a UFO."

"What?"

"When I was a teenager. I was having these troubles at home and with school and everything. Then my stomach swelled up and I thought, well . . . But then after I'd been yanked from school it went down again, and they sent me to a shrink who said it was a hysterical pregnancy, you know? It never really happened. Only I knew it happened because you should have seen my stomach. Finally my parents decided to try a hypnotist. This guy it turns out is really famous and handles the big UFO cases and everything, only I didn't know that at the time, and he put me under and questioned me and all these repressed memories came out."

"Repressed memories?"

"Yeah, see, about a year before I was in bed and suddenly I was awake, and the room was filled with light and everything, and there was this enormous, pervasive noise everywhere, like construction equipment or something. Then I was lifted up in the air, and like right through the ceiling, okay? And into this silvery whirling saucer. There was this alien there, see, and he was green and tall and skinny and everything, and he had this bulging forehead. Big eyes, no nose. We had a romantic interlude." Looking soulful, she took a drag off her cigarette. "Then, when I'd made a baby, he came back and took it away."

"You, uh, remember all this?" Beverly asked carefully.

"Oh yeah, now that I've been hypnotized I remember it all. See, they're dying out, and they need our genetic material, which is more vigorous than theirs, in order to survive. But at the same time they're a very ethical race and they don't want their kids raised on Earth, 'cause it's violent and polluted and everything. So they had to take the baby away. They explained it to me, and then made me forget so I wouldn't be upset."

"So you've been in a saucer twice?"

"Three times. They came back later, so I could meet my daughter." She gazed upward raptly, blindly. "She's out there now, my baby girl is. In a better world."

Can I die now? Beverly thought. And when I do, will they bury me on Planet Earth? "Holy cow," she said aloud. "Look at the time. If we don't get back to the factory soon, Calvin will kill us."

The rushes were disappointing. Worse, Calvin was perfectly satisfied with them. "Look," Beverly argued, "can't you just shift Bambi? I mean, let her play Lady Di and give the kid sister role to Dominique. Then—"

"My dear Willa Cather," Calvin said. "We're not filming *Heaven's Gate* here. We've got a severely limited budget, and we cannot reshoot every goddamn scene. You don't know what I have to go through to finance these things. You don't know the kind of hoods I have to deal with. If we go over budget, they're likely to break both my knees."

"I know, I—" A shiver went through the air, an electric thrill of dread and desire. "But I . . ." She couldn't

think. Her body tensed; her skin felt hot. "I'm not . . ." Beverly put down her papers. "Scuse me." She ran for the fire exit.

"Hey!" someone called after her.

It was there, as she emerged into the light. As if waiting for her. She trembled in fear, but managed to whisper, "Here, boy . . ."

The beast turned to stare scornfully over its shoulder at her, and she cringed away. She wanted to be brave. She wanted to let it do whatever it wanted with her. But within the unflinching honesty of those eyes she felt herself revealed as weak and hesitant. And then it was gone.

She carried the bag of groceries to her fifth-floor walk-up efficiency. Tossing her cap in a corner, she took out a carton of milk, and drank from it as she sorted through her mail. There was a letter from her father. She read it through twice, and then folded it in half and stuck it in her pocket, feeling sick and angry.

"Well, fuck you, Daddy," she muttered, and began to cry. "Fuck you too." When she felt better, she went out for a walk.

It was cold on the sidewalk; the city chilled down quickly after sunset. She walked hunched forward slightly, hands jammed in her windbreaker pockets. The odor of garbage wafted through the evening shadows. Darkness was brought on early by the endless rows of buildings. Up here in Washington Heights they weren't anywhere near so high as in downtown Manhattan, but they were tall enough: twenty, thirty floors of windows, a mosaic of cool, orange lights. She shivered. The buildings seemed to lean over her, window upon window upon window.

She looked up and thought: So much pain. If you could shake the pain and misery from those buildings it would pour out and drown you. All that thick liquid darkness of suffering and betrayal streaming down the streets of New York. How much misery was she looking at, she wondered, how much pain? It all seemed to have a weight and presence of its own, distorting the city about it.

She imagined all this pain forming magnetic fields that warped out from individuals, overlapping, merging into vast, twisted wings over the island. Or like gravitational fields transforming space, each small human tragedy adding to the weight of unhappiness pressing down on this small granite island, making the land buckle under its presence. How much more would it take until it collapsed in upon itself, like a black hole in the depths of space? How much more before you punched a pinprick hole in reality?

For no reason she thought of the unicorn, for the first time since receiving the letter. It seemed to waver in the air before her eyes, so pure and innocent in its wild, savage way. And perfectly irrelevant, a creature that had nothing to do with life as it actually was.

"Take me away," she whispered to the cold. "Take me out of this shitty world."

But she didn't believe for an instant that it would happen.

* * *

Beverly was sitting by the coffee machine the next morning, writing on a yellow legal pad, when she realized that James was making trouble. She was still working on the dwarf story. The problem was that after all her protagonist had suffered in impotent rage—he couldn't even get his hands out of the jug—the discovery of a way for him to take action overwhelmed everything. He just kept creating monsters, and when she tried explaining that he didn't really want to, the monsters came out anyway, all the repressed urges of her character's subconscious. They were unstoppable. Then she looked up, and saw what was happening on camera.

James had subtly altered his character, from a standard handsome stud to an autocratic, weary figure who was able to convince the other characters that black was white and his own perversions amusing. As he tugged knowingly at an invisible goatee, Beverly realized whom he was caricaturing. "Oh, shit," she murmured to herself.

"Derek, darling," Bambi said. "Do you think we should do it?"

James smiled sneeringly. Eyes rolled up slightly under half-lowered lids. The smallest of suave shrugs. "Why not?"

It was so savage, once she saw it, that she couldn't imagine whether Calvin knew or not. Did he possess the insight to see himself as others saw him? Beverly guessed that he was too clever by half to miss it. Before the scene was finished, he yelled, "Cut."

The actors froze on the set, turned to the director's chair.

"This simply is not working, James," he said. "It isn't that I don't appreciate what you're doing. Believe me, no one—no one—could empathize with your performance more perfectly than do I. Your brilliance is truly awe-inspiring. Unfortunately, it doesn't fit with the script as written."

"Don't be an ass," James snapped. "Of course it does."

"Oh, didn't I tell you?" Calvin smiled. "Beverly, take notes: James's character is now a deaf mute. That changes the character considerably, but not the plot all that much. You see? It adds a touch of the mythic to the performance. Sort of like Clint Eastwood, if Monsieur Eastwood were to condescend to work down here among the peons."

Everyone gaped. "You can't do that!" Beverly cried. "James is the only one here who can *act*! You just can't do it!"

"I most certainly can do whatever I want. Who's on lights? Rick—hit me with a blue spot." In the sudden holy light, Calvin looked dreadful and pale as a corpse. He crossed his legs and spread his arms. "Let me tell you a little fable."

"In the beginning were the Words. They were collected into a single volume which chronicled the history of the universe and prescribed a simple moral code for its inhabitants. The Author didn't expect much from His creations. He laid down for them a stern gospel of strength, which granted virtue to the victor, and kept the defeated in line with a whip. An animal could follow it.

"But for some reason the most dearly beloved of His inventions, a group of tailless apes, could not. The Author was puzzled. He sent His only begotten Son to visit the face of the Earth and find out why."

"Is this sacrilegious?" Bambi asked in an irate, piping voice. "I'm a Christian and I won't listen to any . . ."

"Hush, my evangelical little cow, you're stepping on my lines." Calvin smiled. "Here comes the ugly part. The people used His Son abominably. They beat him and scourged him and, in a final piece of typically charming primate ingenuity, drove long nails through his hands and feet and tortured him to death."

"You can imagine how angry the Author was, what horrors of fiery retribution and destruction He considered. For an instant all of creation trembled on the brink of oblivion. But He was a writer, remember, and the end required a vengeance involving words rather than direct action. So He updated His *oeuvre* with a satire of the whole sordid affair, and—oh, the cunning of it!—included within this satire a set of guidelines for leading a good and moral life. Which He knew His apes could never follow. But in their finest moments, they could come close enough to His ideal. . . . Close enough to drive themselves mad with guilt."

"And on the Last Day the Author will judge the living and the dead, and they will one and all be damned forever to return to the Hell they have made of this Earth." He paused dramatically. "So let's not hear any of this shit about cheapening the script. The script is beautiful and perfect as it is, true—but you'd better by God hope that in the final analysis the Author is not a true artist, but rather a hack, like me, Someone who's willing to sacrifice the elegant logic of tragedy for the sake of a cheap and undeserved happy ending. Kill the spot."

The light went out, plunging the world into darkness.

In the silence, Calvin lifted a clipboard. "Let me see that shooting schedule. Umm, yes. It'll be a little tight, but we can reshoot all of James's lines single-take silent and still have a wrap in time." Beverly stood aghast.

"I won't do it," James said, as if speaking for her. "No way."

"We've all got to root in the dirt," Calvin said. "That's what it is to be human." To Beverly, "Write it up tonight."

"I won't do it!" James insisted.

"You haven't been paid yet. If you want to get paid, you'll do it; if not, well, there's the door."

The evening was quiet, all of New York reduced to background noise and edited to silence by its sheer familiarity. The stairwell was redolent with the smell of boiled cabbage. Footsteps echoing upward, Beverly climbed home. She was not expecting to find a man in her doorway. She came up from the landing, keys extended, and then shrieked as he straightened from the shadows and came at her. "Oh!" she cried, and then, "You startled me."

Casually, James raised her hand and kissed a knuckle. Then he looked at her with those killer eyes, smiled a carefully rehearsed smile, and raised a questioning brow. "Aren't you going to invite me in?"

And even though she knew better, even though she

knew exactly what the score was, she found herself saying, "Yes."

When they got inside, she poured two glasses of wine and they made small talk. He kissed her once, almost chastely, and she kissed him back with passion. It had been a long time.

James was self-conscious and formal at first, as if he were still in front of the cameras. But then she pulled him down atop her, whispered, "Stop screwing around," and wrapped her legs tight about his waist. He was better after that.

She was just getting involved when he took her wrists in one hand, and held them down on the pillow over her head. He cocked his other hand and slapped the side of one breast, hard. His dark, perfect smile gleamed in the night. The pain and indignity of it shocked her into lucidity. "Hey!" she cried. "I don't do any of that shit!"

"You should try it, just once," he urged her. "You'll like it."

She wrenched her hands free. "Not like that." She moved his hands where she wanted them. "Like this. And gently, understand? Gently." She wasn't about to play his games. You don't give in to something like that, or you end up like Sal, so inured to mistreatment you begin to imagine you like it.

Immediately after he was done, James rolled over, looked her in the eyes, and said, "Listen, I've been thinking about the movie."

She rewrote the script for him, hammering away at that old typewriter on the kitchen table, while James sat in the easy chair, reading a paperback. Several times, she thought she was done, but he frowned and made further suggestions, sending her back to her dilapidated machine. When at last she was finished, it was two o'clock in the morning. James read it through carefully. "Yeah," he said. "That's a lot better. Mind if I use your phone?"

After he left, she lay awake for a long time thinking first about the unicorn, and then about her father. The cold cracked plaster, the browning formica with encrusted roaches where it met the wall, had never seemed so solid before, so inescapable. She saw them as a prisoner might see the walls of her cell for the first time.

She showed up the next morning laden down with the stack of script inserts from Jiffy-Print. She handed one to Calvin and he flipped through it. His face changed color. He looked up at her in mute outrage, turned and stalked away to get a glass of water. It took him a minute to regain his composure. When he came back, he took her hands in his. She stared down at them, unwilling to face his eyes. There were tiny black curly hairs on the backs of his fingers.

"Calvin, I—"

"Shut up!" he said fiercely. Then, rapidly, "My next movie is going to be called *The Girl in the Glass Box*. That's only the working title, of course. It'll be changed to something more commercial by the distributors. But that should be enough to give you a start on the script. We can start filming in three weeks."

She stared at him, uncomprehendingly. "You want me to write your next script? After what I've just done?"

"I foresee a long working relationship here," Calvin said. "I can see you writing my next ten movies for me. My next thirty. My next two hundred." He grinned, and it was painful to see how angrily he did so. "If not for me, then for somebody just like me. Because you've finally admitted just what you are."

"No," she said in a small voice.

"Oh, yes," he hissed through gritted teeth. "Oh, yes, you have!"

But what was done was done. It was either shoot by James's script, or hold over shooting another day.

Her dwarf wouldn't respond. She'd brought him to the climax and now he simply stared blindly ahead of him, driven catatonic by what he'd done. But that left her story in the lurch, with no sense of closure, no feeling of having *arrived* somewhere.

Beverly had just ripped another page from the legal pad, crumpled it into a ball and thrown it away when Gabrielle screamed like a parrot. Beverly looked up blankly. Gabrielle was staring at her, red-nailed index finger pointing at her in recrimination. At her side, James smiled warmly. "You pig!" Gabrielle screamed. "You whore, you slut! You bed-hopping, man-stealing bitch!" Tears were running down her cheeks, smearing her mascara. Her hands fell heavily to her sides, and she miserably said, "I thought you were my friend."

She turned and noisily fled to the far side of the sound stage to cry. Rick, Joan, and Bambi bobbed along in her wake, with handkerchiefs and sympathy extended.

Leaving Beverly standing alone, the villainess of this trashy little set-piece. The Other Woman. The seductress. The vamp. James was grinning openly at her. There was frank interest in his eyes, a look Beverly knew well, for she had caught it on her own face on occasion. He was watching, curious to see how faces looked in crisis, making mental notes. This, even more than his natural malice, was why he had told Gabrielle about last night. Just to see how she would react. Beverly flushed, and turned away.

Sal walked up, munching on an apple. "Hey, what's wrong with Gabby?"

Beverly was glad to have a friend at a time like this. "Oh, God, it's all such a ridiculous mess," Beverly said. "Gabrielle's having hysterical fits because James told her that we went to bed together last night and—" She stopped.

Sal was staring at her with large, betrayed eyes.

Oh shit, she thought. His roommate. The bastard who likes to hit people during sex. So pretty he's got to be gay. He's an artist, high-strung. James. Sal and James. How could she have been so dense?

"Look . . ." she began, but he turned away from her, eyes filling with tears, and fled into the shadows at the rear of the room. "Sal!"

The director's office door slammed open. "What the hell is going on out here?" Calvin roared, and from the darkness Sal screamed back: "I'm going to kill myself!"

Calvin rolled his eyes and said, "Now, Sal . . ."

Sal's feet clattered on the iron stairway. Calvin hurried after. The rest of the cast and crew, Beverly included, followed.

Sal spun to rest at the bottom landing, slumped against the heavy metal doors. "Don't come near me!" he sobbed, clutching at the pushbar, and Beverly had to suppress a giggle, for it was the stuff of farce, this confrontation. Then she felt a familiar tingling at the back of her skull, a slight lifting of the tiny hairs on the nape of her neck, a nervous wildness that suddenly surged through her blood. The unicorn!

The air was full of potential, as if a thunderstorm hovered just outside. Open the door, she thought. Open the door and let it all flood in.

With a cry of despair. Sal put his weight on the pushbar and threw open the doors.

The unicorn was there, strong-scented and wild. There were flecks of foam on its lips, and broken red blood vessels in its eyes. Its bestial odor was sensual, overpowering. The cast poured out into the alley, and those in front cried out in horror and shrank back, while the press of those behind pushed them farther out. Joan stumbled and sprawled face down onto the macadam. The sudden motion must have startled the beast, for it reared up, hooves of black diamond scoring the air, and screamed. It was the sound of fury and primal madness unleashed, and it froze them all with terror as the creature crashed down to the cobbles.

All but one. Still weeping, Sal ran and leaped for the unicorn's back. He climbed up, threw back his head and made the most extraordinary noise Beverly had ever heard in her life. It was somewhere between a strangled laugh and a scream of despair. But at its peak Sal's eyes opened wide, as if he were staring into a place of unimaginable beauty, and he was shocked into silence.

The beast reared back and pawed the air, nostrils flaring. For an instant, worlds overlapped, and sweet forest air gushed into the alley. Then the unicorn leaped upward into a land that was green and pure and clean, untainted by machinery or greed or human want, and was gone.

Calvin and Maurice helped raise Joan slowly to her feet. James backed into the doorway and vanished as surely and finally as had Sal. The rest of the cast and crew stood there for a long time, and then broke up. Nobody spoke. Nobody said a word. It was as if they knew that the slightest comment would cause all memory of the beast to flee, just as the unicorn itself had fled. Finally, Beverly realized that whatever had brought the unicorn into her world in the first place, it was never coming back.

She went back into the cereal factory, then out the front door to the street. She caught a cab back to her apartment building, climbed the stairs, unlocked the door. In the kitchen, she sat down and tossed her cap into the corner.

"Well," she said to herself, "I'm home." ♦

Plague Ship

R. García y Robertson

1. The Doughnut Hole

The distress call came in out of the cold and empty, after crawling for hundreds of hours at light speed, spreading through coded traffic and the singing static from the galactic core. Software studied the signal, deciding to thaw out the crew of the *Hiyo Maru*. Preservatives drained out of Muskrat, to be replaced by warmed-over blood and stimulants. Heat pumps brought her to body temperature. She unsealed her Sleep Coffin and sat up, brown eyes blinking: a chronometer on the control console told her nearly two decades had passed since she went into Sleep.

Preservation always played hell with her brain's electrical states, sabotaging short-term memory, never letting her remember the actual act of going into Sleep. She recognized the cluttered interior of a standard ram-command module—galley, recycler, and auto-doc aft; Sleep Coffins and acceleration couches forward. What Muskrat could not remember was boarding this particular ship, climbing into her coffin and strapping on the needles. The last thing she *could* recall was Keidport, a spectral hub



Illustration by Tom Miller

of domes and metal webbing, forming a low-gee kaleidoscope of cheap holos and feelie arcades. She was standing by in a tube-station grog spigot, asking an amateur hustler how to find the shuttle to the outsystem berths. Then *ubam*, she was waking up aboard ship in interstellar space, close to twenty years later.

Only calendar years of course, nonrelativistic Newtonian decades, a time scale devised millennia ago by very ignorant Dirtsiders. Still, it was damned eerie.

Stray Dog had gone through a different wake-up, based on his alien biology. Propped on his hind limbs, he looked like an upright yellow-brown baboon with tufted ears, whose grandmother had married a short-nosed hyena. Rows of stiff brown bristles ran down his back. An Eridani Hound has a diffuse nervous system, relying on instinct more than temporary memory, and never seems to suffer human-type memory losses. He was already reviewing the distress signal. The speakbox around his neck rattled off a distilled litany: "Lifeboat type auto-beacon. No ID prefix. Straight out of the Doughnut Hole. No other contact reports." Stray Dog punched an acknowledgment, alerting future contacts that the message was read and being acted on by the *Hyō Maru*.

Muskrat ducked her head under the doppler hood; her curly brown hair was cut short to keep it from snagging. The scope produced an in-depth simulation of local space-time: nearby and current contacts appeared close; others faded into longer ago and farther away. She adjusted the doppler to look deeper into the Doughnut Hole. Any decent edition of the *Systems Guide* notes an empty gulch ten to twenty light-years across separating Sol and Alpha C from the Sirian Systems—a hole amid the systems of Human Space. Such holes are not rare; an even larger one sits on the far side of Alpha C. What makes the Doughnut Hole worthy of a name is the surrounding ring of major inhabited systems, all more or less in the same galactic plane. Running clockwise from Sol around the rim of the Hole are Alpha C, Ursae Majoris Sector, the Sirian Systems, the Near Eridani, Home Sector, then Sol again. In the middle sits the Hole, a black pit of background radiation, burnt-out stars, sunless planets, and dark matter. Muskrat had heard all the stories told in port bars about whispering contacts, pirate strongholds, and haunted derelicts in the Doughnut Hole. But she also knew that, like most of the universe, the Hole was just horribly empty—no place to be lost in a ship's lifeboat. So far from home, a call for help was like a message tossed overboard in a bottle, taking years to lap up at a friendly port.

She whistled. The sending ship showed up like a quasar dropping from near half light speed, aimed smack at Alpha C.

Pulling her head out of the doppler hood, she told the computer to crunch through the navigation numbers. The *Hyō Maru*, coming in from Keid A, was on a converging track ahead of the signaling ship. Intercept solutions arched across her screens, fountains of colored lines representing different options. Most fell short. She frowned and said, "We could just do it: decelerate, shift

vectors, let it catch up, then match velocities. That would mean dumping our load. . . ." The *Hyō* had two parts to her, a ram-command module and a detachable cargo module. They could send the cargo module free-falling toward Alpha C at near light speed. "Any other solution takes too much reactant mass."

Stray Dog stretched his jaws to mimic a human yawn. "OK, we dump the cargo, but this better be worth it."

"And they say Hounds have no heart." She was already setting a beacon, warning wreckers that the cargo module was not salvage, but a load in unattended transit. The cargo module contained some new superconducting computers, and several vats of the best Imperial cognac—valuable stuff, especially the cognac—but if a crew had taken to the lifeboats, that crew came first. No hand wanted a call for help ignored because someone's precious cargo was too important. An outsystem tug from Centauri Control could catch the module, brake it into an elliptical orbit, and eventually bring their cargo in.

She settled back in her coffin, saying, "Sweet dreams," though she knew in Sleep there were no dreams, no brain activity of any sort.

Over a thousand hours later Muskrat awoke again, with no memory of having been awake before. Hearing the distress signal, she ordered the galley to kick out coffee and began the routine of isolating and assessing the signal. Reaching for her coffee, she saw the amber row of lights on the cargo panel and let out a shriek, dumping the hot cup in her lap. "The cargo module is gone!"

"Sure." Stray Dog flipped his speakbox to a comforting drawl. "You got absolutely plastered and dumped it. Tried to stop you. Don't you *remember*?"

She mopped at her coveralls and hit playback, to learn what really happened. It was spooky to hear her own voice making decisions—important decisions—and *have no memory of them*. Sleep was a necessity, imposed by interstellar distance and the laws of physics; but it was also a little death, stealing something of her each time. No wonder they called the cabinets "coffins."

Computers had done everything, decelerating, matching vectors, positioning them perfectly. Starboard screens showed that the signaling ship was gigantic, twenty kilometers long, a polished cylindrical whale wallowing in the stellar sea. Despite a mind-numbing mutual velocity, the only apparent motion was the stately rotation of the immense hull, framed by the blackness between the stars.

"Welcome to the stone age." Stray Dog's speakbox registered contemptuous disbelief. The starship must have begun life as a stony-iron planetoid. Someone renamed and polished the planetoid, married it to a gargantuan mass converter, then set the whole monstrosity whirling around its long axis to create the semblance of gravity.

Nothing showed around the derelict—no escorts, no lifeboats—just void. The lifeboat-type distress signal probably came from a boat deck. With no sign of a living crew, the crude, sturdy ship ignored the *Hyō*'s signals and bored on toward Alpha C.

The thing to do now was board. Stray Dog was already in his V-suit. She knew the xeno would never en-

certain the notion of not going in. Penetrating the unknown was a primal urge among Hounds—practically a religion—and the only reason they put up with humans.

She suited up and stepped through the forward lock onto the outer skin of the *Hiyo Maru*, and found herself staring straight into the derelict's gigantic exhaust port, keenly aware that if this great throat so much as coughed she would be fried down to her boot clips. This was where vacuum hands earned their pay, doing free-fall ballet to the music of the spheres. Waldoes would not reach out between the stars, and thinking robots were frightfully expensive.

"Cast off." Stray Dog's artificial voice never showed a trace of concern, unless he programmed in an emotion.

Feet braced, she fired her line-gun at the exhaust port. Her grapple hit the rim, and she cast off from the hull of the *Hiyo*. Stray Dog, an artiste at suit work, did not bother with a safety line, but sprang straight at the rim that arched around them, twisting at mid-course to position his feet for landing.

Muskrat was too busy to applaud. She snubbed her own line into the winch on her suit belt, then swarmed up the cable, swinging her boots into contact with the rim.

Stray Dog was there waiting, completely at ease on the narrow tilted rim, his line-gun still buttoned in his holster. He peered down at the stars spinning about the ship's equator. "Hey, on the outside of these old spin ships, every direction is down." One swift, unconscious glance and Muskrat looked away, cursing the Hound and calling for an anti-nausea shot from her suit. Every direction *was* down. A trillion trillion kilometer fall. The whole damned universe spun around her point in space, tugging at her stomach and safety line, trying to throw her into the black whirlpool of hard radiation produced by near relativistic velocity.

Coriolis effect made her come down funny, playing havoc with her semicircular canals. Did the damned Hound even have semicircular canals? Probably not. Nothing diluted the vacuum between his tufted audio-antennae. Stray Dog was too insensitive to get dizzy, even from drink. She had seen him walk a perfect line down a tumbling corridor with enough boost ethanol aboard to stagger a brontosaurus.

The nearest access lock was simple mechanical, operated by bleeding air into the vacuum. The huge ship had air to spare. But once they got inside, neither she nor Stray Dog would be dumb enough to crack a helmet. Whatever disabled the crew could be lurking just outside their visors, ready to go to work on them. They would not risk going in with nothing but nervous grins.

The lock opened into a cavernous access shaft cut from solid rock and braced by graceful steel ribs—glow-tubing snaked downward out of sight. Stray Dog grappled his line to the lock and began to rappel down the rock surface in regulation style. Muskrat followed him into the immense emptiness, using her suit winch to slow her descent. By the time she hit bottom the spin gravity felt close to one gee, a tiring one-third above ship normal. The deck was slightly canted to compensate for the deceleration and keep "down" directly underneath.

Leaving their dangling lines, they set out. Everything about the enormous ship had a dead feel to it: the still air carried no hum of air conditioning; dust and debris created an archaic feeling, as though Muskrat was exploring some titanic undiscovered tomb. As she walked she sensed a rhythm, not a mechanical beat, something more like music, far off but getting closer. Following the distress signal through a maze of ramps and branching corridors, searching for the boat deck, Muskrat realized the music was coming from ship's speakers somewhere ahead of her. Drawing closer, she could make out words:

*You ask for safety,
You ask for shelter,
Just take what's coming round now . . .*

She recognized *Circle of Fire*, a popular pseudo-rock serenade from a century or so back. The song was being played over and over again, a demented counterpoint to the clamoring distress signal and the tomblike emptiness.

The tunnel ahead widened into a boat deck. "Signs of life," Stray Dog said, pointing to piles of trash. Sweeper robots, huge metal crabs with cleaning attachments, crouched idle among the litter, turned into grotesque squatting statues by a powerdown.

A rumpled human figure appeared among the sweepers—a blond giant with sunken eyes, bulging muscles, and a bad growth of stubble. He did a wary, instinctive double-take, and Muskrat recognized a walking case of the high-velocity jitters. The man collected himself, eyed them over a too-broad smile, and gave his name as Toom. "Crack your headgear. The air's not bad, not great, but not bad either."

As they opened their visors, Muskrat saw the man's attitude do another flip-flop. His eyes widened, then narrowed, saying "Woman!" then "Xeno." Toom mumbled apologies for the mess, as if they cared how the ship looked. "Sorry, internal sanitation is all locked down. One of the guys got stuffed down a waste disposal slot by a gang of sweepers with their screws loose."

"Ingenious way to tidy up." Heavy sarcasm signaled that Stray Dog had not liked the look he got. The Hound knew more about human faces than he admitted.

"Yeah, he was a big guy too, before the sweepers took him apart. We figured we could live with a little mess."

Muskrat had seen snakebit crews before, coming in from really bad runs, with faraway looks and stumbling speech, but looking into Toom's eyes was like seeing down to the surface of a gas giant, where the air was pressed flat by kilometers of pressure. The entire ship reeked of bad luck and worse karma.

"Got ourselves a humdinger *vi-rus*." Toom tossed the explanation over his shoulder. "Chou can tell you. He's stupendous at talking about it, can keep on that subject for hours at a stretch. And, ah, welcome to the *Ark of Halcyn*."

The ship's name was Sirian, which explained a lot. The boat deck looked like it had been turned inside-out and shaken loose. Repair projects, empty chassis, and junked components lay scattered about, alongside coconut husks

and stained teacups. The distress signal was coming from an opened-up lifeboat, a tiny starship stranded amid the mess.

"Meet Mr. Chou." Toom indicated a lanky chocolate-colored figure sitting cross-legged eating with chopsticks. Chou slid his meal tray out of the way, making room for Muskrat and Stray Dog. The *Ark's* crew had put off doing dishes for some time, and Muskrat watched the latest tray impact, sending ripples through a confused mass of litter. Without having to hear it, she knew these two men were all that remained of the crew, and must have been surviving for months in this wreck of a living quarters. It was a wonder they had not throttled each other.

Barely nodding at their names, Chou launched into a description of the problem, punctuating sentences by flashing readouts on a mobile monitor. The man moved like a cat on caffeine, talking at hyperlight speed in multiple dimensions. The rest of the crew *was* dead, either killed in their Sleep Coffins, or chewed up by machinery gone berserk. Aside from playing *Circle of Fire* over and over again, the ship's comnet was unresponsive, so Chou had to use a lifeboat's autobeacon just to call for help.

"It's an Imp computer virus, slow and subtle." His hollow eyes lit up. Any dedicated software jockey had to dig a sweet program, even one that was doing him in. Included in Chou's visual aids was a casualty list. Name after name. Muskrat recognized one, a hand named Gordie Shaw. She remembered a cheerful guy with an elfin grin, very fond of singing the songs of Earth. Ages ago in the Far Eridani, she, Gordie, and a bottle of bourbon had showered together. They had taken turns swigging from the bottle and lathering each other's bodies. It was a semieducational shower, and she had gotten to know parts of Gordie quite intimately. From time to time she had wondered what happened to Gordie. Now she knew.

"What is so subtle about stuffing people down waste slots, or chilling everyone in Sleep?"

Chou lost his thousand-light-year stare, looking right at her. "Oh, the virus is out to get us, but life goes on."

"Tell that to the stiffs in Sleep." Muskrat was imagining the mass converter running wild or the ramscoop collapsing. Catastrophic failure. One instant you were thrilling to your favorite feelie on the three-V and the next nanosecond you were a greasy streak on the void. Such thoughts made her fidget.

"This virus is locked out of the drive and main power," said Chou, taking an uncanny dip into her stream of consciousness. "Drive and power are a sealed system. Sirians bought them straight from an Imperial dockyard."

Muskrat gave a grunt of approval. Imps made their own hardware virus-immune; it upped their competitive advantage in peace or war. "Are Imps and Sirians at it again?" She liked to imagine she was on friendly terms with the cosmos, but a dozen wars could have started during two decades in Sleep.

Chou shrugged. "Maybe this virus is left over from the last war, maybe it is the beginning of the next one. Once turned loose they mix and mutate."

Muskrat nodded. "Look, I never met a computer I didn't detest. If your Housekeeping unit has an Imp

virus, or just the galloping hiccups, let's shut it down, zero the circuits, blast every byte in the bugged. You can bunk with us in the *Hyio* and Centauri Control can deal with your rogue software."

Chou was aghast. "We can't close down. Not until we repair the damage in Number One Hold. The cargo there is worth mega-megacredits." During Chou's visuals, Muskrat had scanned the cargo manifest. The *Hyio's* cargo of fast brains and fine brandy was not one-millionth as expensive as what the *Ark of Halcyon* was hauling.

"We have to do this clean-up right," Chou insisted, "then settle back into the Sleep Chamber until we get to Alpha C."

She shook her head. "Look, your Sleep Chamber is a goddamned morgue now. Come bunk with us. Our lifeboats have a pair of spare coffins."

Chou's gaze retreated into the infinite, his eyes becoming quantum black holes fixed somewhere south of Vega. "Closing down is the lasertorch approach. I am cleaning out Housekeeping, isolating sections, zeroing them out, then reconstructing the software. It is the slow way, but it will get us control." The last word rolled out like holy writ—Chou was a control freak sunk in serious chaos, a frightening combination.

"I like the lasertorch," declared Muskrat. She turned to Stray Dog for support. "What do you say?"

Her heart sank: no help there. The xeno was stripping off his suit, making himself at home. His speakbox answered, "Human, Stray Dog is busy at the moment. Leave your ID number. He will be happy to return your signal."

She glared at the Hound, knowing that whatever Hounds used for hormones fed on finding problems and overcoming them. He had to prove he was tougher than the task waiting in the hold. Seeing her stare, Stray Dog turned his speakbox to a more accommodating tone, appealing to her professionalism. "Look, we're here, light-years from anywhere, with a task to be done and a chance to be tremendously overpaid for doing it. Let's help bring this cargo in, then file an uncharitably salvage claim."

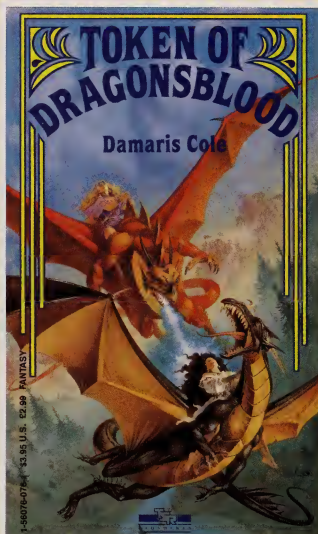
Grimly she agreed. It was that or sit in the *Hyio* and sulk, while Stray Dog worked alone. The Hound had money and pride on his side, and all she had was a heavy sense of foreboding.

Chou became brisk, speaking past her to Toom. "I can keep clearing the Housekeeping circuits. Take these two and repair the effects of the powerdown in Number One Hold. The virus made more of a mess there than the SuperChimps can handle." He raised his hand like a skinny black Buddha giving a blessing. "And Toom, try not to waste too much time pawing her. Number One Hold needs serious attention."

She shed her suit, following Toom and Stray Dog down the huge hallway to the nearest hold entrance. Every corridor in the ship was built big enough for a marching band, but the only music filling the great hollow space was the chorus coming over the comnet:

*There comes a feeling
There comes a reeling
Your world whirls around now . . .*

Join Fate's Undeniable Destiny...



When the dying land greens, and Shay leads the soldiers of rebellion, then the warriors of the Chidd will join with the Army of Stone. And the crown of Ac'talzea shall rise on wings of night to smite the conqueror."

To Noressa, the prophesy means nothing. But from the beginning of her journey eastward to answer the summoning, the fates are against her.

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Toom leaned into her personal space. "Don't it bother you to bunk with a dog?"

Muskkrat shrugged. "He's got no human diseases." She edged away, dialing herself a chemical cocktail from her medikit, artificial enthusiasm to send her into the hold. Muskkrat guessed Chou was your generic vacuum hand, while Toom was the one real Sirian left onboard. He was tall, blond, and self-confident; clearly raised on steroids in a system that venerated the human form.

Shuffling down the corridor, she thought about Gordin and the shore leave she shared with him. She supposed it would only be worse if she had known him better. Hands were always leaving each other behind; space-time was too big for anything but good-byes. She saved sorry facts like that for times like this.

A SuperChimp was waiting for them at the hold entrance, a hulking female with a pair of needle guns slung over her shoulder. She punched a set key on a speakbox similar to Stray Dog's. "Greetings, Masters. Hello, fellow Inferior. You may call me Kay-Tee."

Toom took one of the rifles and checked the gun's action, chambering a charge with a single swift motion. The Chimp handed Muskkrat the second rifle. Muskkrat hefted the heavy plastic, then handed it off to Stray Dog. Kay-Tee's eyes widened, and she fingered her speakbox. "Is this Inferior intelligent?"

Stray Dog pulled back his thick lips to show his fangs. "Who's inferior, Hairy Human?" That was what Hounds called SuperChimps.

"He talks," admitted Muskkrat. "Intelligent would be stretching things, but let him have the rifle. Being neither an Imp nor a Sirian, I am not happy to be fighting old battles, or starting new ones."

Kay-Tee seemed completely scandalized, hairy chin hanging down. Toom had his hand on the hatch lever. "Neither Imp nor Sirian? What system are you from?"

"Old Earth," said Muskkrat.

"Never heard of the place." He spun the lock lever.

Stray Dog keyed a dictionary entry. "Old Earth—Sol III, Terra, Gaia, etc. Supposed ancient home of humans."

"That old myth?" Toom jerked the hatch open. "What you see in this hold might open your mind a bit."

The hatch slid aside. There was no airlock separating the corridor from the cargo hold. Muskkrat stepped directly into a steep-sided green Glen, divided by a glassy brook. Impossibly tall pines covered the slopes on either side. A wet salt breeze stirred her hair, and downstream she could see wave caps in a patch of blue water. Beneath her feet was a deep carpet of ferns and sedges, dotted with flowering plants.

2. Into the Hold

Muskkrat found the view from Carnivore Station ridiculously extravagant. The station stood at the confluence of two steep valleys separated by a flickering static fence—one valley stretching northward to the land bridge and herbivore country, while the other ran southward deeper into carnivore country. From a knoll overlooking the station she could survey the sweep of Number One Hold.

To the north she could see the blue-green equatorial sea, bounded by an island chain and the land bridge. The tops of tall palms and cycads marked the swamplands and salt marsh along the seashore. To the south, groves of pines and cypress ran along the streambed, merging with a towering forest of giant sequoias. The ship's spin put the pull of gravity beneath her feet, more or less where it belonged: "north" was forward and "south" was aft; "east" and "west" curved upward with the hull. Gentle deceleration, which had topped all of the taller sequoias, gave a disturbing southward tilt to the landscape.

Hot heavy air vibrated with menace, and the lack of horizons bothered Muskkrat. The turgid sea curved upward at both ends, as though its waters were too listless to run downhill. Heights disappeared into the low cloud cover hiding an artificial sun. The mini-world was crowded into the short and middle distance, forming a distorted landscape filled with reminders that Muskkrat was inside a huge hollow starship, not on some primeval planet.

Catastrophe had already hit Carnivore Station. Shattered geodome sections were scattered about, ripped, shredded and trampled—some pieces pressed a hand's span into the ground. Torn plastic flapped in the slow breeze off the water. She saw no sign of the SuperChimps that were supposed to run the station. Chimps showed keen judgment on occasion.

Toom stood with both feet planted in a single herbivore print gouged out of the wet sand, and gave her a friendly leer. "When that herd came thundering through, SuperChimps must have scattered like monkeys in a cyclone." Muskkrat glanced over her shoulder at Kay-Tee, squatting patiently behind her. The SuperChimp's humanoid face was impassive, one hand lying ready on her speakbox. Toom went on talking, pointing with his needle-gun to indicate direction. "A few weeks back Chimps brought a small herd over the land bridge to graze in this valley. In the middle of the night alarms went off and the static fence collapsed. The herd bolted, stampeding over the station into carnivore country."

His smile turned gleeful. "Imagine this place in pitch blackness, alarms howling, six-ton herbivores climbing over everything, squashing apes, bellowing in blind terror. It's enough to loosen your anal sphincter before you can get your coveralls down." He was plainly pleased by that tableau.

Hyper-tense, Muskkrat did not find him funny. She was staggered by the size of the four-toed prints pitting the landscape. Knowing and seeing are separate realities. The quality of light said it was early morning in the hold, so get the job done, she thought, then get some sleep. More complications would send her spinning out of control into total collapse. "What now?"

"We go find 'em, and herd 'em out of carnivore country. Each one of these monsters is worth too much to have them chewing on each other." Toom set off following the wide trail of trampled honeysuckle and uprooted pines.

Stray Dog hefted his needle-gun, tapping her on the shoulder. "So get it done, then find the fun." His speakbox parroted the Sirian's drawl perfectly.

Muskrat joined at what she hoped was a safe distance. A few steps and she was among the tall sequoias, closing around her, forming a lofty cathedral forest lit by shafts of filtered sunlight. Fallen trunks of forest giants were stacked thick enough to hide anything. She could see stubs of branches pruned by browsers who reached limbs ten meters up the trees. Snapping twigs gave her seizures, but all she saw were little green grass frogs underfoot. Maybe not grass frogs; Muskrat had seen no blade of grass so far, just ferns, horsetails, moss, sedges, and a shrub that might be magnolia.

The trail turned when it reached the tall palisades separating the highland valleys. Here the herd had hit the cliffs and caromed southward. Toom fell back from the point to check with Chou. Muskrat could hear *Circle of Fire* coming over his comlink as he talked—thoroughly sick of the song, she had her own comlink locked down and lying in her coveralls pocket.

The Sirian turned and smiled, locking down his comlink. "What are you doing when we're done?"

"Done?" They had hardly begun.

"Sure, figure we'll have this mess wrapped up tomorrow at the latest."

"What time tomorrow?"

Toom laughed, looping his arm around her shoulder. "Come on, tell me what you gonna do."

"Sleep," she said.

"Alone?"

Muskrat shook herself alert. "Hit replay?" The ship was crawling through the black chasm between the stars, light-years from anywhere, a sadistic virus controlling Housekeeping, while they hunted hyperthyroid monsters through the forest primeval; *and this loon wanted to see her coveralls down around her ankles?*

"Well, you got a clear choice between me and Chou."

"Right, and I'm the only female for ten trillion kilometers." She waved to where Stray Dog was trotting ahead. "Shouldn't you be taking the point or something?"

Toom smiled. "Let's say you are the only female who isn't lying in our Sleep Chamber with the temperature turned too low and her legs frozen together."

"You know, Toom, I've heard that put more gallantly."

"Just trying to be straight with you," chuckled the Sirian. "Honesty is important in a relationship. You don't want us to start off all wrong. It's a long way to Alpha C."

"Take your troubles to Kay-Tee." She nodded toward the SuperChimp. "If she turns you down, I'll try to grab you on the rebound."

Toom laughed at the hulking Kay-Tee. "You got humor, girl. Who would hump a SuperChimp?"

She gave him a grim smile. "It's a long way to Alpha C."

Stray Dog stopped, selecting a pleasant contralto on his speakbox. "Something's ahead." Muskrat felt her breath stop. "Something big and dead." Stray Dog raised his needle-gun, pointing to shadows soaring over the treetops, huge stork shapes cutting wide circles under the cloud cover.

"Damn," snorted Toom. "If one of those pin-headed herbivores died . . ." He broke into a run that Muskrat was forced to match. Even a walnut-brained carnivore

could read those carrion signs, and she wanted to be close to the needle-guns if something with more teeth than sense came storming out of the pines.

She heard the horror ahead before she saw it—grunts, squawks, and vicious barking accompanied a sinister ripping. Keeping behind Stray Dog, she scrambled up the slope to a small rock shelf above the trail. From there she could see straight down into a gully about twenty meters below, where great fanged creatures thrashed about in a pit full of gore. One of the lead herbivores had careened full tilt into the gully, and the terrified herd had stamped over the living bridge. The trampled herbivore was more than dead; it was being gutted and devoured by a pack of huge hairless carnivores with tiger-striped hides, long tails, powerful hind legs, and hideous table manners. Leaping about, they slashed at the herbivore with sickle-shaped claws, carving off strips of skin and meat, gulping down the bloody hunks without taking time to chew. The only intact part of the herbivore was its massive horned head, one cold yellow eye glaring up at Muskrat.

Toom sat down on the small lip of stone. "Do you know just how much that herbivore is worth?"

Stray Dog peered down and tapped his speakbox. "Not so much now, unless you fancy ground dinosaur. Always found it tough and gamey myself."

"The full cost of this feed is coming out of our contract." Toom crossed his legs, resting his rifle on his knees and looking up at Muskrat. "Well, here's your living proof that humans do not come from Old Dirt or whatever you call it." She tried to shift focus, but could not block out the sights and snarls from the pit.

"Shows how far back our Archives go," declared Toom. "Sirian Grand Dukes had star travel millions of years before there were any Imps, Terrans, or other so-called civilizations." Muskrat could see his argument. Earth had the pyramids, the Great Wall, and a few thousand years of written history; but Halcyon had dinosaurs. Prehistoric saurians were the pride of the Sirian Archives, prime evidence that civilization on Halcyon predated human life on Earth by sixty-odd million years. She watched one of the big stork-vultures settle down on the horned head and peck at the huge unseeing eye.

"Even a xeno can see it." Toom tried to drag the six-fingered Hound into the debate on human origins.

Stray Dog moved his shoulders up and down, imitating a human shrug. His speakbox said, "Hard to argue with science."

"Do it all the time," said Muskrat, "when I'm in the mood." Right then she did not want a quasireligious debate with a dedicated Humanist and a talking hyena, not while giant flesh feeders barked and burped below them. "We got serious work to do. Let's find the herd before this pack finishes eating and is hungry again."

Toom got up. "Wouldn't worry about these boys. They're *small* carnosaurs. The really big ones have twice the length and ten times the mass." Muskrat decided that "small" must be an impossibly relative term. The horrors below were twice as tall as she was, with the mass of a good-sized ground car. They squabbled over the intestines like tiger-striped iguanas at a spaghetti-eating

contest. She saw two of them fighting over the same strand, eating their way to the middle. When they were snout to snout the bigger camosaur jerked its head back, pulling a couple of meters of dinner out of the other's gullet, then snapped it off and gulped it down. And people said that dinosaurs were dumb.

Unklocking his comlink, Toom checked in with Chou. No music in the background. *Circle of Fire* no longer filled the comlink. Barely believing it, Muskrat searched her sweaty coveralls, going through a dozen pockets, slots, and zip flaps, until she found her own comlink.

"See," she heard Chou say, "no need for a lasertorch, pry bar, or powerhammer." The man was basking in his own genius. "Just takes time. The virus had thousands of hours to work its way into the system, being benign and cooperative. Hell, some of this half-assed Sirian softwears run better with the virus attached."

Toom cut in, sounding testy. "Meanwhile we lost an herbivore." Muskrat guessed the Sirian was not pleased by the deeper reasons behind his job. The *Ark of Halcyon* had obviously been an orbital playpen for the Grand Dukes of Sirius. Now the *Ark* was headed for Alpha C, where it presumably would become a preserve for some Imperial parks and recreation syndicate with more credit than taste. The Sirian Dukes must have hit the wall hard, and were selling off their most prized prerogative, the privilege of owning and hunting prehistoric saurians. The Empire produced everything else cheaper and better, and credit does not come easy in a cutthroat cosmos.

Chou was not disturbed. "Those horned herbivores are just backdrop, but we cannot have them tangling with the carnivores and sticking something really valuable.

The camosaurs are what people will pay for. Where's the challenge to hunting house-sized vegetarians, unless you plan to do it with a pry bar or sonic bug swatter?"

"Whatever happened to survival of the fittest?" Muskrat would have let the monsters work out their own problems, rather than play dinosaur cruise director.

"Too expensive," said Chou. "Sirians packed in too many camosaurs for a balanced ecology. Cheaper to have the Chimps feed the big boys from frozen carrion."

And maybe a SuperChimp or two just to top it off. Muskrat locked down her comlink. Toom was looking her over. "So the man's a computer genius," he said. "He is also a nifty chink who never cleans up, probably has diseases they haven't invented drugs for."

She closed her eyes, willing herself into a dimension light-years away. The Sirian's drawl followed her. "But if you're getting stuck on him, we can swing some time-sharing. I mean, Chou's okay, if you can take the odor. There's time between here and Alpha C for both of us."

"I hope you two are happy together." The man suffered from massive testosterone poisoning, and Muskrat knew she might have to give in just to get some peace. To her immense relief Kay-Tee came scurrying up, bowing, scraping, and begging their pardons. Toom wanted to know what could be so damned important.

The SuperChimp set her speaker to contrite apology. "Forgive me, Master. I did not mean to disturb your courtship display. We have the herbivores."

"Where?" Toom sounded more irritated than the news warranted. Kay-Tee indicated a rock saddle between two pinnacles where a Chimp was running back and forth. Muskrat could hear the alarm signals that Chimps used among themselves. It surprised her that Kay-Tee could fix the herd from some hooting and running about, but Chimps had a secret life their "masters" often missed.

Climbing to the saddle, they found a Chimp trail leading along rock runways across an almost vertical landscape between the treetops and the low-hanging mist. The path was easy going, dinosaur-free, and all but invisible from the ground. Muskrat was impressed. It beat tramping through the tangle below, too scared to spit and expecting to get stepped on. Her impulse was to hand the rifles and the job over to the Chimps, who seemed to know what they were up to.

Toom and Stray Dog bounded on ahead. When she caught up to them they were standing on a spur of rock where the highlands thinned into a narrow wedge pointing toward tall overhanging cliffs. Muskrat guessed that these cliffs must be the hold's aft bulkhead. Between the spur and the rocky bulkhead was a steep pass connecting one narrow valley to the next. The valley beyond the pass had a completely different ecology, semi-desert with soil too shallow to support anything bigger than berry bushes. The mist overhead thinned, letting in more artificial sunlight. Muskrat could see how in the highlands the inner surface of the hold was a labyrinth of sharp ridges running along the axis of the ship. This winding landscape gave the illusion of space, creating long vistas down the narrow valleys, hiding the true curvature of the hold.

The herbivores were grazing near the mouth of the pass; perhaps they had not liked the stark landscape in the next valley. Intact they were impressive—massive ceratopsians with huge neck frills and three sharp horns, colored deep blue-green with a darker stripe along the spine. She heard Toom on the comlink to Chou. "We got them. But it would be a bad business trying to herd them back down the valley. They got a real cafeteria here compared to the overgrazed areas in herbivore country. You have to get some grav sleds going." Muskrat could see that the big beasts were happily mowing through the berry bushes and pine seedlings.

Chou came through crisp and cocksure. "I cleared the comlink, didn't I? You can have grav sleds, flitters, whatever. I have the virus backed into the Sleep Chamber and hangar circuits. The little bugger's about to be *bis-to-ry*."

"Bout time." Toom was not cutting Chou any slack. Muskrat saw that the computer operator's easy success was wearing on the Sirian. "Fast-forward us some sleds."

"I'll get the Chimps working on it." Chou broke contact with a sharp click. Muskrat thought twenty kilometers of starship might hold two male egos comfortably, but it was beginning to look like a close fit. Months of enforced togetherness had brought Toom and Chou to the end of their tethers. To take off some of the tension, she made sure she was paired with Stray Dog for the shoot. The xeno was all ego, but found humans sexually unappetizing. Toom and Kay-Tee went to fire from the far side of the pass.

Muskrat asked the Hound to show her how to shoot. She did not like the rifles, but they should not remain a mystery, amplifying her fears.

"First you need to learn to draw down the charge." The Hound took a fresh charge from his belt and tossed it to her. "At full charge one of these will knock a thirty-ton sauropod tail over toenails in midstrike, killing anything smaller. So don't stick yourself with the probe."

Muskrat held tight to the plastic charge, keeping the thin needle-sharp probe pointed away from her.

Stray Dog indicated a knob on the charge. "Pull this bolt back. The notches correspond roughly to a quarter-ton of body mass. These herbivores here are over six tons; set the bolt a couple of dozen notches from the bottom."

Gingerly she drew back the bolt. "And if they were under a quarter-ton?"

"Everything under a quarter-ton gets the minimum dose. Needle-guns are not for sticking frogs. Something seems too small to you, just step on it."

"Frogs I'm not afraid of. What if the charge is set low and something bigger leaps out at me?" She did not want to admit it aloud, but the thought of trying to reset the charge with panicky fingers terrified her. The largest carnivores could easily outrun humans.

"Then you empty the chamber," Stray Dog pumped the rifle and a charge came flying out sideways, falling at her feet. "The next charge is always set at full. If that is too complicated, just pull the trigger twice—probably what a panicky human would do anyway. But remember, that second shot is a sure kill; don't use it unless you have to."

She was still hesitating not to fire a first shot.

Stray Dog laid out a dozen charges for her to draw down, then curled up to wait for Toom's signal. "Set them all for over six tons. I'm shooting the *big* ones. Toom can have the juveniles."

Stray Dog's arrogant unconcern made Muskrat even more nervous about the coming shoot. "How do you even know where to hit them?" She was wondering if the charges would work somewhere safe, like the tip of the tail. Muskrat could imagine herself taking on a sleeping dinosaur, stealing up and spiking the lizard at the point farthest from the jaws.

"The charge works almost anywhere—but go for the belly, it's big and hard to miss. The head is the only bad spot on old triceratops." His speakbox rolled out the word in professorial tones. "From head on all you see is beak, horns, and bony collar. You never want to fire at a ceratopsian charging flat out for you; worst shot imaginable."

"Right." She watched Toom and Kay-Tee stroll across the pass, as easily as if the grazing dinosaurs were great boulders strewn about. If the herd bolted again and stamped through the pass, Toom would have nothing but head shots, studded with horns and galloping at him.

"So where do you shoot when one charges you?" A useful piece of trivia to file away for panicky moments.

"You aim for the muscles that anchor the fill, but be careful not to poke out an eye. Surgery on these brutes is tricky."

"Well, sure. It might pay better to lie down and let

them run over me; give the autodoc something easy to work on."

She heard the shoot signal come over the comlink, and saw Stray Dog spread full out on the ledge, resting the needle-gun on the rocky lip. He started pulling the trigger, pausing only to shift the barrel tip to cover a new target. The first ceratopsians fell while their neighbors grazed, not showing the least concern. When half the beasts were down the survivors started to squawk, their cries bellowing through the thick air. They lifted huge heads out of the greenery and turned their heavy hindquarters, swiveling on short front legs, searching for the threat. But there was no danger to be seen. Little beasts lay prone in hiding, malignant bacteria dropping them one by one.

The last to fall backed toward each other, forming a pathetic ring with their young in the center. Horns and neck frills faced outward, beaks snorting fear and defiance. Muskrat stood frozen, watching Stray Dog shift his aim, shooting over their bony heads, hitting those on the far side from behind. Toom must have done the same, their shots crossing in midflight, going straight to the soft center of the herd circle.

She breathed out as the bedlam ceased, realizing she had held her breath for most of the shoot. The pass fell silent, except for bird calls and the wind whistling between stone spires. Stray Dog rose to one knee, chambering fresh charges. "Easy as frying flies in a microwave."

Muskrat saw the SuperChimps coming, riding on grav sleds, and heard Toom tell Chou through the comlink that the Chimps were none too soon. There was a cool edge to Chou's reply. If there was a real feud developing, then this disaster was pretty near perfect. She followed Stray Dog down the trail. From the floor of the pass the still forms of the ceratopsians became miniature hills thrusting up among the chewed-over seedlings, making Muskrat feel sad, though they were merely sleeping and would awake in safer circumstances. "I cannot see why anyone would want to hunt them," she murmured.

"Rich Imps will buy anything," explained Toom, plainly bitter about having to sell off his system's pride.

Still awed, Muskrat made the honest mistake of asking, "Can you really think that humans brought these beasts to Halcyon so long ago?"

"Scientific Humanism tells me so," insisted the Sirian. "Everything worth having is a human creation. All worthwhile inventions—most especially star travel—are products of human imagination. Xenos, Chumps and all other beings are, strictly speaking, lower animals."

"Careful, some of the animals are armed." She saw Stray Dog strutting triumphantly atop the largest ceratopsian. Such talk could send him into a carnivorous frenzy; fortunately he tended to tune out human chatter when his hunting instincts took over.

Toom did not seem concerned. "Sure, they hear and talk, but only because we taught them. We built their speakboxes. We gave them the stars. Human species superiority is as real as relativity; not admitting it makes you Imps and Terrans victims of pathological species self-hatred."

Muskrat looked away. She thought Scientific Humanism resulted from serious brain malfunction on a system-wide basis. Always being beaten by the Imps must have given the Sirians a crushing inferiority complex, but she hesitated to point this out to a muscular neurotic holding a gun designed for dinosaur.

Toom bore down on her. "I suppose you subscribe to the other theory?"

"What theory is that, Toom?"

"The theory that some *mysterious* xenos explored this section of the spiral arm sixty million years ago. These unknown xenos visited the local worlds, stored what they found in vaults on Halcyon, then just as *mysteriously* vanished."

She could tell by the stress on "mysterious" that the Sirian thought the evidence for this story was slim. To her, one story made as much sense as the other. The Archives on Halcyon held impressive exhibits from the uppermost Cretaceous, as well as from the last few centuries. They were terribly thin on the eons between. If the Sirian Grand Dukes had really invented star travel in time to collect the last of the dinosaurs, they must have spent the next sixty thousand millennia sitting on Halcyon and feeling proud.

A shout from Stray Dog's speakbox saved Muskrat from answering. She saw the Hound pointing his needle-gun up the sunlit pass. There was the sight she had most feared. Two tawny carnivores were charging through the gap, teeth gleaming, tails lashing. The ones she had seen feeding were poor relations; here came the real thing, twin terrors twelve meters long and able to swallow her whole.

Rooted, she watched the pair come on, realizing a whole hunting pack could be hidden by the pass. Stray Dog and Toom did not seem concerned. The Hound scrambled down from his dinosaur, striding over to where Toom stood. Both of them popped the charges out of their rifle chambers, discussing the oncoming carnosaur's bulk in professional tones. Then they reloaded and Stray Dog stepped away from Toom. They raised their rifles.

"Shoot," Muskrat said to herself. Man and xeno just stood there, letting the tyrannosaurs career closer, gaping jaws showing off ferocious dental work. Muskrat could count the sharp straight teeth.

Toom and Stray Dog fired. The carnosaur came skidding to a stop in a cloud of dust and snapping saplings. Muskrat exhaled and sat down.

Toom turned to her. "So, what happened to them?"

"Happened to who?" She gave him a weary glance, wishing he would stop hammering her with questions.

"The *unknown xenos* who are supposed to have brought these creatures to Halcyon. Why did they just disappear?"

Now she was supposed to answer for a bunch of xenos no one had ever even seen. "Look around you, Toom." She waved at the great still forms. "Sure these are 'lower animals,' but look how tremendously strong, how terribly vital they are. For more than a hundred million years they covered my entire planet, growing

more agile, more cunning, more adaptable. Then they were gone, in a great dying so sudden and complete that eons later we still argue over how it happened. On Old Earth every land animal massing more than twenty-five kilos disappeared forever. All that was left of them were a few samples and embryos stored in armored vaults on Halcyon, light-years away."

She stood up and stuck her hands in her coveralls.

"Why ask me how it happened? Maybe sixty million years ago death stalked through this section of the spiral arm, and we are still shaking our heads, sifting through the boneyard."

3. The Red Queen

Late-afternoon sunlight filtered through cloud cover and pine tops from the vibrating power source at the center of the hold. Time in the hold was no longer computer-modulated; now it ran off a simple twenty-three-hour timer, tuned to the short Mesozoic day. Muskrat watched while the SuperChimps grappled the sleeping ceratopsians onto grav sleds, working with the final circle of giants, where the herd had made its last stand. Parents lay in a broken ring around their young.

Toom was slowly waking from a nap. Too agitated to sleep, Muskrat admired the lack of imagination that produces such mindless composure. She saw him stir, yawn, look around and unlock his comlink.

Suddenly the SuperChimps were screaming and hooting. She turned to see two of them dashing about the big circle of sleeping ceratopsians, chased by a baby triceratops three meters long and massing a couple of tons. Toom had cut the charge too fine. Kay-Tee came running up, begging her masters to shoot and save the two Chimps. Toom leaned on his needle-gun, laughing at the hulking youngster's attempts to trample the Chimps or butt them with stubby horns. Kay-Tee kept hopping about, pleading with him to fire.

Stray Dog was up by the pass, inspecting the sleeping carnosaur. Muskrat pulled a charge from Toom's belt, set it at two tons and shoved it into his hand: "Here, shoot."

With studied unconcern he turned the charge over, moving the bolt up a couple of notches. "This child here is bigger than he looks; that was my mistake before." Apparently, damage to Chimps did not come out of his contract.

The frantic SuperChimps broke in opposite directions. Confused, the young triceratops hesitated, then went thundering off after the closest Chimp. Toom chambered the charge, still not firing, loath to end the show.

Muskrat made up her mind to grab the needle-gun. Chou's voice came over Toom's comlink, his audio inflection sounding urgent. Toom listened, then growled, "Well, park your black butt on it for a bit. We got troubles of our own." With a swift, easy motion he shouldered the rifle and fired. The triceratops crashed to the ground at the heels of the terrified Chimp.

Kay-Tee bowed and scraped something sickening, thanking her masters profusely, which only made Muskrat madder. She knew Sirian SuperChimps were mind-

blocked, preprogrammed to venerate every absurd tenet of Scientific Humanism, but such servility turned her stomach. She did not need to see another species grovel to know how great she was.

Muskrat had to bear the full brunt of the Chimp's gratitude, because as soon as Toom lowered his rifle he was lost in conversation with Chou. When he was done he locked down his comlink. "Our dumb chink genius has more bad news. One of the big carnivores is on the loose in herbivore country, must have made it through the gap before the Chumps got the static fence back up. Chou says to get her. Sends his regrets, says he would come if he could."

"Would come if he could?"

Toom smiled. "The man's exact words."

"How *big* a carnivore?" This time the quarry could bite back. None of Muskrat's fittings felt tight, and she just wanted the hunt done with.

"The Red Queen. Big enough for you? Chou's tracking her because the Queen has a comlink embedded in her skull."

"Maybe it's a false signal?" It seemed her luck was running pretty near perfect.

"Sent by the virus to panic us? Chou does not think so and he is the computer jock, claims he has the virus totally on the run."

Stray Dog came trotting over. When Toom told him the news, the Hound bared his fangs. "What fun," chuckled the speakbox on his chest. The xeno drew a charge, setting it for an even twelve tons.

To Muskrat this was the least fun part of an unfun day. She had heard of the Red Queen, the only dinosaur famous by name. Whoever had brought the dinosaurs to Halcyon sixty million years ago had been mostly satisfied with eggs, embryos, and gene samples; but the Red Queen they had brought whole. She was a rust-colored tyrannosaurus, the sole known example of a particularly huge variety. For centuries she had stood in a transparent Sleep Chamber, the pride of the Sirian Archives, the last product of two hundred million years of carnivore evolution. No bigger killer had ever strode Old Earth, not before or since.

Toom handed her his rifle. "Chou thinks we need some spotting, so I'm going for a flitter. Here's my needle-gun. Try not to shoot yourself in the tit. That charge is fatal for anything under a dozen tons of body mass."

She pushed his hand off her breast. "I'll manage."

Toom headed off for the hangar, saying over his shoulder, "See you when I'm airborne. Take the talking bipeds with you." He waved to indicate Kay-Tee and Stray Dog.

Muskrat watched the Chimps sled away the last sleeping herbivores. They had thrown a portable static fence over the two camosaurus, to keep carrion-eaters from chewing on them. Very neat and professional. The fences had dumb mechanical switches, immune to virus and dinosaur. The whole ship would be run by the Chimps in that brute manner if Muskrat had her way, but Chou was holding out for *con-trol*. She looked hungrily at the flickering fence, wishing she could curl up under it and sleep for a dozen or so hours.

Kay-Tee led the trek toward herbivore country. On the far side of the valley they struck a Chimp trail that toiled up over the ridgeline. Chou kept calling coordinates through the comlink, but Muskrat let the others make sense out of them. Plodding along the path, she spooked a wiry beak-nosed dinosaur no taller than she was. Expressing very humanoid surprise, the beast bounded off, running like a frightened little man in a lizard suit.

"An egg-eater," said Kay-Tee. "They roam freely over the hold." Muskrat recognized a slight nod toward a balanced ecology. Dinosaur eggs were not particularly valuable, and the *Arke* carried thousands of them in temperature-controlled caverns. It was the *big* grown beasts that everyone wanted. No one paid high prices to hunt eggs.

A buzzing sawed through the thick air, between the pine tops and the mist. She looked up, expecting some brontosaurian insect, but instead saw a silver flitter. Toom was airborne, supported by a pair of cantilevered wings powered by an engine attached to the tail keel. The ultralight flitter had no landing gear, and could be walked about on the ground with wings folded. Hop, skip, and you were in the air.

She watched Toom cut back and forth, riding the up-draft off the ridgeline, a shining double star, his wings catching the slanting rays of the pseudo-sun. Muskrat wished he had kept the rifle. She bet he could make it through the misty passes and bag the Red Queen before they crossed over the ridge. The silver shape darted forward, diving into the mist. Muskrat assumed Toom was headed for a high pass she could not see, getting guidance from Chou. High and blind was the Sirian's style.

An audible crunch came over the comnet. Kay-Tee started hooting and pointing, forgetting she had a speakbox. A silver wing fluttered out of the clouds, catching on the cliff face. Horrified by that bright bit of metal, Muskrat croaked into the comlink, "Chou, Toom is down."

"Impossible."

"Check your telemetry." Chou would trust nothing that did not come off a screen.

"Damn."

"You said it."

A tense two-way talk followed. Chou took the rather heartless line that telemetry said Toom was dead, and the Red Queen would benefit from immediate attention. Everything was going way too swiftly for Muskrat, who found it hard to just punch "erase" on the obnoxious Sirian. "You trust that telemetry link? Look at the bang-up guidance job it did. Toom is still waiting to hear about that rock wall."

"Come get another flitter," insisted Chou. "It's still the best way to hunt for the Queen." The man was a monomaniac.

Muskrat looked at Stray Dog. The Hound pulled back his lips in a grim smile that meant, "My, how you humans have messed up." He started to fool with his comlink while his speakbox declared flatly, "I am going after the Red Queen. You and the Hairy Human can find a flitter."

"Hold the hunt." She tried to talk him down. "We

have serious guidance problems—look what happened to Toom.”

Stray Dog jacked his speakbox to extra-confident. “You and Chou can deal with guidance. I am setting my comlink to the Red Queen’s frequency, so I can follow her on my own.”

She shifted from one foot to the other, hating to split up, but wanting a face-to-face meeting with Chou, who seemed frightfully casual and businesslike after slamming Toom into a mountain. That was either a terrible overreaction to Toom’s poor manners, or a really sick way to reduce the male-to-female ratio. Chou was smart enough to clean up when he saw the need. Either way, the man needed a sharp talking-to. Stray Dog did not worry her so much. He was a survivor type, a moving target who would not sit in one place like Chou nor sleep on the job like Toom. So she cut him loose, saying she would get back to him as soon as she had a flitter.

“Kay-Tee, you come with me.” At least the Chimp took her seriously.

Stray Dog bounded off before she had finished speaking, still fiddling with his comlink, trying to get a fix on the tyrannosaur. Nothing would stop him now that his hunting instinct had taken charge.

“Shall you lead, Master, or shall I?” asked Kay-Tee.

“You can lead,” Muskrat shrugged, “as long as you stop calling me ‘Master.’” Implied choice confused the SuperChimp, so Muskrat turned the conditional statement into an order: “You lead, but do not call me ‘Master.’” Kay-Tee’s constant kowtowing made her nervous.

Kay-Tee still seemed distressed. “Then how should I address you?”

“Well, ‘Hey, you’ suits most strangers. When we get to be friends you can call me Muskrat.”

They started off. Kay-Tee led her over a low saddle into the valley beyond. Muskrat was glad to see that the next valley was nothing like carnivore country; it was more open, in fact badly overgrazed. She shed her fear that something was going to leap out of the undergrowth and make a meal of her. A mixed herd of dinosaurs filled the valley bottom, blending one into another, their colors mixing as they moved.

From a comfortable distance Muskrat found them beautiful. She saw more of the horn-faced ceratopsids, and some equally huge duckbilled hadrosaurs. Dwarfing them all were big-footed, graceful-necked sauropods—tremendous mountains of moving flesh. Whipping about between the feet of these titans were fleet little dinosaurs like two-legged gazelles, taller than Muskrat but not much heavier.

This Mesozoic version of the Peaceable Kingdom pleased her. Nothing looked especially threatening, just oversized—only the giant sequoias kept the landscape in scale. She saw no sign of the Red Queen, the terrible tyrannosaur that was supposed to haunt the valley.

Despite the overpopulation, a pair of hadrosaurs were hard bent on reproducing, humping away like hands on shore leave in a truly awesome display of thumping and thrashing. That cheered her. She found herself humming an ancient air, to a tune that Gordie

had taught her. It was the first time in a long time her mind had held any music besides *Circle of Fire*:

*Sighing like the nightwind,
and sobbing like the rain,
Waiting for my lost one
who comes not again . . .*

Kay-Tee tapped out a question. “Master Muskrat, I try my best to obey, but how can we ever be friends?”

Muskrat stopped humming. Her flip offer of friendship must have been bothering Kay-Tee the whole time; no wonder Toom called them Chumps. “Sure we can be friends.”

“How, Master?”

“Start by talking about something homey. Do you have any kids? A mate? If I may be so personal.”

Kay-Tee puzzled over this. “I am too old to have offspring, and do not mate much anymore.”

“No one is too old.” Muskrat drew out the small shielded egg-chamber she wore on a chain around her neck. “I keep my own ovum in this, for when I want children. Most female vacuum hands have them. Your eggs are safe from radiation, and you can even get them pre-fertilized. Just pop one in a mechanical womb, and nine months later you have an offspring or two.”

“And when these offspring need to nurse?”

“They have drugs today that’d make a man lactate.”

Kay-Tee shook her hairy head. “That is for humans.”

“It would work with you,” said Muskrat. “Our genes are ninety-nine percent alike.”

“Does that make us the same?” The Chimp’s speak-box expressed polite disbelief.

“No,” said Muskrat, “it makes you a SuperChimp and me a woman. But under a microviewer my chromosomes look more like yours than like Chou’s.”

“How is that possible?”

“Because we are both female.”

As she said that, it struck her hard that Chou was the only human left in the *Ark*’s original crew. The virus had come within an angstrom of getting them all.

Dusk was settling by the time they reached the gap above Carnivore Station. She looked back at the herds behind her, seeing tremendous light and dark shapes—striped, dappled, studded with horns and topped with crests—all crowded together, heading back for the land bridge. The power and beauty of this moving landscape made Muskrat proud of her far-off planet. Eons ago Old Earth had produced these huge creatures, and now a syndicate of offworlders had parted with planetoids of credit for one small remnant of her past.

They went through the static fence, past the ruins of Carnivore Station. Muskrat opened the lock and turned to Kay-Tee. “Go to the flitter hangar and get one prepped.” She handed the Chimp the needle-gun. “Take this with you, and make sure the hangar door is on manual.” Muskrat wanted to know they controlled the lock, and that there would be no surprises when they needed to open or close the hangar. The flitter hangar emptied straight into carnivore country.

Kay-Tee tried to reject the rifle, then seemed pleased to be ordered about and scooted off toward the hangar. Attempts at casual conversation must have been a burden on the Chimp's mind-block.

Alone in the *Arle's* cavernous halls, Muskrat considered calling Chou on the comlink, telling him she was coming, but by now she was thoroughly sick of electronic links. Approaching the boat deck she began to feel better, even light-headed, and dialed herself another stim shot to clear her brain for conversation. The big deck was as messy as ever, giving off the faint odor of decay though the vents were running at full, pouring air out into the corridor.

She called out to Chou, but her voice sounded weak in the great hollow space beneath the roaring vents. Her chest hurt, like a brontosaurus was kneeling her in the lungs. She heard a suit alarm ringing, though she was not wearing a suit.

Chou was stretched out across his tatami. Muskrat staggered to a stop, taking great gulping breaths. Did he have one stim shot too many? Was he sick? Drunk?

The corpse's face was gray-green at the edges, eyes wide, staring out from deep pits of formaldehyde flesh. His mobile comp terminal sat like the loyal dog by its fallen master. A single crisp image appeared in Muskrat's spinning head: a circle of stupid horned dinosaurs being cut down one at a time by a bacteria-sized enemy.

Her hands hit the deck first, stopping her from breaking her nose. She stared at fat numb fingers spread in front of her. A sober voice screamed, "Hypoxia!" Turning slowly, she crawled toward the corridor, the vents thundering overhead; lying green lights claimed the air mixture was correct. Lead arms wanted to lie down, but the anaerobic odor of death kept her legs moving. She squirmed into the corridor, panting and terrified. Unlocking her comlink, she gasped for Stray Dog.

"Greetings, Human. Stray Dog is busy at the moment. Please leave your ID number. He will be happy to return your signal." The Hound had locked his receiver on the Red Queen's frequency, so nothing would disturb his dinosaur hunt.

Muskrat screamed into the comlink anyway. "Record this: Chou's dead. The virus got them all. It is in control. Don't trust anything that comes over the comlink." Chou had lost his computer contest with death. Somehow the virus got him; cooperating with his circuit-clearing, then snuffing him like a flame in a vacuum, filling the boat deck with an odorless inert gas. Muskrat realized that for some time she must have been chatting with the virus over the comlink, thinking it was Chou. She wanted to sit there and be sick, but forced herself to act. There was a circuit panel by the boat deck entrance. She leaned against it, flipping switches, blanking circuits. Lights winked out and vents ceased roaring. The deadly little program had beaten them so far, but there was still brute force. No program could block her from using her hands.

She continued to swear and shout into the comlink, "I am powering everything down. Zero all the circuits; we have to retreat into the hold." She had no idea if Kay-Tee or Stray Dog could even hear her.

One panel down. Now for the flitter hangar, to find Kay-Tee. Rounding a corner, she really did throw up—onto a pair of left feet and part of an arm lying on the deck. The remains of two, possibly three, SuperChimps were scattered about like bits of bug left by a power mower.

She wiped her mouth with the back of her hand. Something with a terribly big appetite was loose in the corridors, a huge carnosaur, maybe more than one. Heart hammering and head still dizzy, she slipped on the gore, banging against the bulkhead. Get to the hangar. Toom's needle-gun, her needle-gun now, was with Kay-Tee.

Pushing off, she ran for the hangar, pausing only to slam more switches, forcing herself to take time, banging the final circuits closed with her fists. Another panel down. She dashed straight into the hangar, calling for Kay-Tee. The bay was wide open to the night blackness of carnivore country.

She stopped, stricken by wide-band terror. Half filling the hangar was the great gnarled form of the Red Queen. Jaws and ugly head shone bright crimson under the hangar lights. Clawed three-toed feet were planted on either side of Kay-Tee, who stood directly under the dinosaur, waving her gun, trying to shoo the enormous beast out of the hangar. Both Chimp and tyrannosaur turned to stare, startled by Muskrat's sudden arrival.

Kay-Tee reacted first, holding out the rifle. "Master Muskrat, here is your needle-gun." Her speakbox sounded absurdly calm.

"Just shoot!" yelled Muskrat.

"Master Chou told me not to fire," the mechanical voice explained.

"Chou's dead. Fire, damn you!"

The mind-blocked Chimp hesitated, caught between conflicting human orders. The Red Queen seemed less confused. Her head snapped down and rows of saw-edged teeth closed about Kay-Tee's middle. Twisting about, trying to fire, the Chimp was lifted into the air. The monster bit down harder, using a shearing action. Kay-Tee's shot went wild, clanging off the ceiling.

Horrified, Muskrat saw the tyrannosaur's head go back and gulp. Kay-Tee dropped the rifle. Head, shoulders, and a single leg hung from the great jaws. Kay-Tee's mouth opened, hooting something. Another gulp and Kay-Tee was gone, except for the dangling leg which dropped next to the rifle on the deck.

Human and dinosaur stood alone in the hangar.

Too stricken to turn and run, Muskrat slipped down to her knees. The needle-gun was lying on the deck next to Kay-Tee's sawn-off leg. Above it hung the knob by head, nostrils flared, eyes peering from under bony ridges, looking strangely curious. Perhaps the monster was confused by meals that came running to her.

"Do not press panic," Muskrat told herself. "Everything will be all right." She edged toward the needle-gun. Yellow eyes studied her movements. She knew the Red Queen had a brain as big as hers, but what could Mesozoic monster *really* know about people and guns?

Still hungry after a SuperChimp or three? Muskrat stretched herself full out on the deck. "Take it easy, old

girl," she said aloud, talking to herself and the tyrannosaur. Her hand closed around the stock of the rifle.

The hideous head bobbed down, dripping with blood. Muskrat rolled sideways, holding in a hysterical scream. In complete shock she watched the big camosaur scoop up Kay-Tee's stray leg. Cheeks bulging as she chewed and swallowed, the Red Queen gave her a suspicious look, like Muskrat had been trying to snatch carrion from between chisel-edged fangs.

Rising to one knee, suppressing hysterical giggles, she shouldered her rifle, sighting straight into the belly of the beast. No way to miss. Only real danger was having the dinosaur fall on top of her. Her finger found the firing stud.

The charge. Her sweating finger gripped the stud, but did not squeeze. Kay-Tee had fired; so this was the second shot, set for full charge. Fire now, and a megacredited dinosaur was going to be dead meat.

"Shoot, shoot," chanted the reptilian back of her brain, but pressing the firing stud was one more win for the virus that had snuffed Chou, Gordie, and the others. The hangar had been left open, baited with Chimps, just to pit this carnivore against her. More damage was done no matter who won. Every gram of feeling rested in her fingertip as she stared into the creature's ugly, carnivorous face. The only adult survivor of the Cretaceous extinction stared back at her.

Forcing her finger off the firing stud, she eased the rifle down to her hip, gaze fixed on the camosaur's jaws. The Red Queen cocked her head, following each of Muskrat's movements. "Be a good little horror," Muskrat muttered. "If you give me a minute, I will do both of us a favor." She pumped the gun. With a horrid click the charge in the chamber came flying out.

Down came the great jaws, rows of sabre points snapping at the sound and movement. Muskrat squealed. Her free hand bobbled the ejecting charge, sending it skittering across the hangar deck. She dived for it, rolling fast, just ahead of the teeth.

Slamming into the bulkhead, she trapped the charge with her body, then tried to burrow into the angle where the wall met the deck. The tyrannosaur's snout bumped against the bulkhead above her, and the Red Queen reared back, a disturbed look on her face, as though Muskrat were not worth all the trouble she was causing.

She fished the charge out from under her. Sobbing, steadying herself, she drew the charge down, seeing nothing but the notches, then she brought the rifle back around slowly, slipping the charge into the chamber. The plastic made another booming click.

The jaws lunged. Muskrat rammed the rifle right into the open mouth. The Red Queen recoiled with the barrel lodged in her teeth, jerking Muskrat's finger off the firing stud. There was a short tug of war. The twelve-ton, thirteen-meter tyrannosaur won.

Biting down, the Red Queen gave her another disturbed look, and began to spit out plastic rifle parts.

Muskrat crawled deeper into her corner. The terrible carnivore stepped after her, jaws opening again. Horror melted away. Hopeless calm took control. A lying voice

in her head said, "You are going to be all right somehow. This could never happen, not in real life."

The Red Queen cocked her head, as though she too could hear that voice. Then, in stately low-gee motion, the massive camosaur leaned forward, collapsing, sliding down toward the deck. Muskrat leaped away to keep from being crushed as the big beast flattened out.

Staring at the still form, relief flooded over her, making Muskrat feel so light she thought for a moment the *Ark* had stopped spinning. Stray Dog came striding up the sleeping Queen's spine, needle-gun under his arm, looking tremendously pleased. He retrieved Muskrat's broken and twisted weapon, punched with tooth marks, the barrel completely shattered. Looking it over, he gave his head a slow, exaggerated shake. "You would have saved yourself a lot of worry if you had got off a shot."

"I stopped to set the charge," she said in a shocked whisper, as much to herself as him. Her body felt empty, hollow as the *Ark of Halcyon*.

"Stopped to set the charge? Are humans born brain-damaged, or is it acquired with age?"

She stalked over and jerked Stray Dog's charge out of the Red Queen's hind end. It was set at twelve tons. She waved the probe in his face. "You set yours."

Stray Dog flipped his speakbox from "disdain" to "patient instruction": "I had all the time I needed. She was not about to bite down on me." He gave his muzzle another slow, solemn shake. "And you know, Chou was way off. The Red Queen was not in herbivore country at all. Imagine my surprise when I tracked her here."

"Imagine mine," said Muskrat, shaking off her shock and emptiness. "Chou is dead. We have to close down Housekeeping and get back to the *Hiyo*. The drive unit can find Alpha C by dead reckoning. Centauri System is a tenth of a light-year across; it can hardly miss it."

"And leave all these lovable dinosaurs and Hairy Humans?"

"We can follow them in, and have the *Hiyo* wake us if we're needed." She hoped to heaven they would not be.

Going from panel to panel, they shut down every circuit. Warning alarms sounded. Familiar voices came over the comlink—Toom's, Chou's, even Gordie's—cajoling, threatening, pleading with them to cease. They finished up their work using hand lamps, making sure there was not an erg of energy left in Housekeeping. Muskrat would have smashed the circuits if she could, destroying every trace of the virus.

Back in the *Hiyo Mari's* cramped cabin, Stray Dog reviewed his speakbox's memory. Coming upon her message, he played it back for both of them. "You told me over the comlink to ignore everything that came over the comlink?"

Muskrat shrugged, saying she supposed so. It was plainly her voice, high-pitched and panic-stricken.

"That is a self-negating absurdity. Humans have less logic than blue-green algae."

"I had a hard day." She lay back in her acceleration couch, hoping she would emerge from Sleep in Centauri System having forgotten she was ever awake. ♦

Logos: My Tale Is Read

Rob Chilson

Hugh Hesselstine paused to remove his hat and wipe his brow, looking at the lilacs creeping up the trellis in front of the *Wheat and Sickle*. "Odd, that," he said aloud. But then, this was Langdon, a village where he'd never been before. Likely, many things were different here, so far away from everything. He was all of three days' walk from Little Midling.

Dismissing the puzzle of the creeping lilacs temporarily from his mind, Hugh stepped to the door of the tavern. It was open, and he looked in and immediately recognized Sir Stanleigh Storm from the books. There could be no mistake: his black-and-white checked cloth cap, pointed fore and aft, lay on the table, and the famous shoulder-cloaked black coat was thrown over the back of a chair. He was smoking his briar, meditatively reading a book; a half-empty stein sat before him. Even as Hugh stared, he groped expertly for the stein and lifted it for a drink.

In the *Wheat and Sickle* they visibly had no idea who sat at one of their tables, doubtless waiting for food. Mine hostess bustled about, and a girl desultorily washed and dried glasses behind the bar.

Hugh received a jolt. The famous eagle eyes of Sir Stan-



Illustration by Hannah M. G. Shapero

leigh had focused on him over the brim of the stein. Immediately Sir Stanleigh lowered the heavy glass and looked Hugh sternly over from head to foot, swallowing his sip. Sir Stanleigh's frowning gaze returned to Hugh's face with a puzzled, indeed with a slightly befuddled look.

Even Sir Stanleigh might be forgiven a dubious glance at his stein, though it was obviously the first he'd had that afternoon, and an even more dubious glance at the book, which Hugh thought to recognize: one of R. Chilson's.

"I am not one to cavil at impossibilities," said Sir Stanleigh to Hugh, rising. "Hugh Hesselstine of Little Midling, I believe? There cannot be two who wear slouch hats such as that—lovely feather, sir—or pantaloons of that cut. A hot day for walking. I perceive that you have been several days upon the valley road."

Coming out of his daze, Hugh stepped over the threshold and bowed bemusedly. So this is what it feels like to step into a book, he thought. "And you can't be none but Sir Stanleigh Storm, the great detective. Your clobber and your self are also one of a kind."

Sir Stanleigh glanced in some surprise at his cap and coat, as if seeing for the first time just how distinctive they were. Hugh supposed the other was as surprised as he at having his rather workaday garb called distinctive.

"Ma-rye-uh! Maria!" called the hostess. "Another gentleman! See to 'im, lamb."

"My dear sir," said Sir Stanleigh after a moment. He spoke with some emotion. "It is a great pleasure, and a great surprise, to meet you here in Langdon. Mr. Hesselstine, I have long been an admirer of yours; but I thought you purely fictional." He took a pull on his pipe, looking questioningly at Hugh.

Hugh walked up to the table and reached out his hand. Sir Stanleigh clasped it firmly. "I'm as surprised as you," he said. "Doubted you was solid, Sir Stanleigh. Fact is, I'm a great reader m'self, and I've always admired your adventures."

Sir Stanleigh said "Haw!" as he released a puff of smoke. "So each of us is fictional to the other. And yet, here we are."

Maria came to the table, flourishing a dirty cloth. "What's the gentleman's desires?" she asked tiredly.

Hugh cocked an eye at the stein. "How's the ale?"

"Capital; couldn't be bitter," said Sir Stanleigh. "Haw!"

Hugh looked at him for a moment, then got the joke on better, and smiled. "Ale, then. Shepherd's pie, or steak-and-kidney, whichever you've got, ducks."

When she had gone Hugh sat down comfortably, tossing the jacket he'd been carrying onto the fourth chair at the table and dropping his slouch hat on it. "Odd, this," he said, and that reminded him of the lilacs out front. "Did you see them creeping lilacs? Elf magic, likely. Langdon's a strange place, on the face of it."

"Indeed," said Sir Stanleigh, puffing on his pipe again. "There are metaphysical connotations here that disturb me."

That was the kind of thing Sir Stanleigh would say that caused Hugh's brow to wrinkle when he was reading Chilson. Usually it was explained, but here, there was no one to explain Sir Stanleigh but Sir Stanleigh. Feeling like a great gump, he said, "You mean the lilacs?"

A sharp glance from the eagle eyes. "The lilacs I take to be indicative only," he said. ("Ah," said Hugh.) "The greater problem lies in the nature of the universe. See here, Mr. Hesselstine. Let us say that I, Sir Stanleigh Storm, am reading a book by R. Chilson. While doing so, I am imagining the whole world and everything in it, including you."

"Ah," cried Hugh in excitement. "I'm in Chilson too?"

Sir Stanleigh was very quick on the uptake, just as Chilson had always said. "Indeed, your adventures are his best books. And I take it that you read of me in Chilson also?"

"Yes! Only *them's* his best books."

"I thank you; I think we both have reason to be proud." Sir Stanleigh smiled, and glanced up as Maria appeared tiredly with Hugh's stein. When she had gone, Sir Stanleigh waited politely till Hugh had taken the edge off his thirst, and continued. "When I am reading about you, I imagine you and your world. And when you read about me, you imagine me, giving me and my world reality in your mind. But, Mr. Hesselstine, neither of us is reading of the other at this moment." He indicated the book on the table. "This is a Gaharionath story in any case."

Hugh though he'd recognized the book. "You mean," he said, feeling a creeping chill, "we're only real when someone's readin' about us?"

"If we are both characters in books, it must be so," said Sir Stanleigh. He emptied his stein and set it down, too well bred to expel his breath. With a lift of his finger he signaled Maria again. "The question is, who is reading about us at this moment?"

Hugh pondered that for a moment. "Don't make much difference, do it? Must be thousands of people reading Chilson. What gets me is, him puttin' us in the same book. I don't know as I like that. Them kinds of books don't usually work too well."

"It's the only way we could meet," said Sir Stanleigh. "But I am forced to agree, though I trust that one so redoubtable as R. Chilson will not fall into any of the obvious auctorial pitfalls."

Tired as she seemed to be, Maria was prompt enough with the ale, and had the wit to bring two.

When he had finished his first and tasted the second, Hugh got back to what struck him as the cardinal point. He said, "Let's take another look at them lilacs. I didn't but give 'em the once-over as I come by."

"No better starting point suggests itself to me," said Sir Stanleigh.

With looks of mutual respect the men rose, Sir Stanleigh fetching his black coat with its cape. Outside they stared in astonishment at the trellis. It was now covered with creeping lilies.

"Spider lilies," said Hugh wonderingly.

"Hmmm," said Sir Stanleigh. They approached the trellis cautiously, and Hugh sniffed the air.

"Still a smell of lilac in the air," he said.

Sir Stanleigh sniffed apologetically. "I've been smoking and don't detect it. However, your powers of observation, Mr. Hesselstine, are justly famous. Faint scent of lilac in the air, and of course these lilies have no great odor. So until moments ago, there were indeed lilacs on this trellis."

"Don't sound much like elf magic," said Hugh. He

poked at the vines. "Hey! Them's rose vines. Rose vines with lilies on 'em."

"Yes, I had observed. I suppose if one wishes to make climbing flowers, as it might be lilacs, one should start with a climbing vine. You observe, of course, that these are not domesticated but wild rose vines."

Hugh frowned at the vines. Then he saw what Sir Stanleigh meant. There were twice as many thorns as on tame rose bushes, and they were straight. Had a more businesslike air, too. Looked uncommonly like cactus thorns. But that was standard for wild rose, of course.

Sir Stanleigh produced his famous folding lens and examined the lily blooms minutely, as Chilson would say, but observed nothing significant, as his grunt conveyed. Snapping the lens shut and replacing it in his coat pocket, he looked frowningly at Hugh, as puzzled as he.

Around them was the blandest of normality. Cocks crowed, birds chirruped, village voices called. Somewhere a boy sang a song whose chorus was, "Tell me a story, tell me a story," in an irritating falsetto. Hooves clopped in the road, and a calf bellowed in the distance.

A loud clatter drew their attention to the street. A carrier's wagon had pulled up before the inn, and a short, slender, bewildered man fell off. Hugh hadn't seen the beginning of this movement, but he suspected that the other had intended to descend normally but had become distracted by something in the landscape and ceased to pay attention to what his hands and feet were doing. They had immediately become entangled in the wheel he was descending.

As the fellow, still lying in the dust of the street, was directing a glare of wild incredulity equally at him and his companion, Hugh supposed it must be they who had caused his fall. He shared a glance with Sir Stanleigh. The eagle eyes were inscrutable, but Hugh knew that the inscrutability covered puzzlement as acute as his own.

"Pardon me, sir; may I help you?" Sir Stanleigh said. The two stepped forward, Hugh as helpful and curious as the detective.

"Er—no, thank you, Sir Stanleigh," said the stranger, arising nimbly enough and knocking the dust of the road from his hands. He seemed young, but his hair was thinning and receding. "Thanks anyway, S-sir Stanleigh, Hugh—er—Mr. Hesselstine."

Hugh frowned, not recognizing the fellow. He was wearing curious clothes, blue pants and violet knit shirt with a collar, both cut very close to his body. "You got the advantage of us, mate," he said.

The stranger's mouth opened and closed as he looked from the one to the other; he did not seem to notice the carrier's box brushing him as the other lugged it into the inn. Closing his eyes, he said, with an air of one who expects to be disbelieved, "My name is Chilson."

The eagle eyes stared for one astonished moment into Hugh's own wide peepers. "R. Chilson?" Sir Stanleigh demanded.

"The same," said the stranger faintly. He cleared his throat. "Rob."

"The same R. Chilson as wrote all them books?" Hugh said.

"Well—er—I've written a number of books," said the stranger apologetically.

"Then how can you be *in* this book that you're writin', eh? Tell me that!" Hugh said triumphantly.

"Oh, I make no difficulty of that, Mr. Hesselstine," said Sir Stanleigh. "Authors often write themselves into their books. Tell us, Mr. Chilson, just what is going on here. Why are two of the more notable adventurers in your books brought together?"

"Er—I'm sorry, gentlemen." Chilson spread his hands helplessly. "I have no idea."

"No idea!" said Sir Stanleigh frostily. "How can you have no idea, sir? This is your book, is it not?"

"Well . . . I suppose it must be. Nobody else would write about you two. But really, I'm not writing this book. I'm just one of the characters in it."

Hugh's head began to ache; he looked at Sir Stanleigh, who looked uncertainly back. "You're the writer of the book," Hugh said, getting it straight, "and you're a character in it. And yet you don't know nothing about it."

"No more than you, gentlemen." He looked around nervously at the placid village street. Somewhere the small boy still sang his monotonous song, *Tell me a story, tell me a story*. "I've never been in a place like this. I'm from a different world."

That's right, Hugh thought. Sir Stanleigh existed in a world whose features were not to be found on any map in Hugh's world.

"A different world," Sir Stanleigh mused. "A different Word, ha! 'In the beginning was the Word.' Logos, in the Greek." He looked sharply at the stranger. "How did you come to be here, sir?"

"Well, I'm not sure," said Chilson unhappily. "I have only vague memories of . . . before. I think I was writing, and I have a feeling that I was drowsy. Maybe about to doze off in my chair. Then I gave a sort of start, because I was sitting under a big tree. I stood up and wandered around in shock for a bit, in the middle of the Dubious Forest, on the side of the road from October Vale. At first I was afraid it was Micklewood. Presently the carrier came along and offered to convey me to Langdon for three copper pennies. So here I am." The poor chap still looked to be a bit under the weather.

"Hmm," said Hugh. He'd been overcharged. "So you're not even writing the book, exactly; more like dreamin' it."

"Writers do a lot of dreaming," Chilson said apologetically. "Sometimes when they're asleep, more often when they're awake. All good books are dreamed up."

"But when you wake up, back there where you came from, you'll disappear from the book? From—Langdon?" Sir Stanleigh asked.

"I don't think so; do you? I mean, a bad writer sometimes forgets about a character and stops writing about him. Or a writer will go back and take a character out of a book. But characters don't just vanish without good reason. Remember," he said, and he looked haunted at the thought, "I'm part of this book now, even if I am writing . . . somewhere else."

"So there's two R. Chilsons," said Hugh. "One that's writing the book and one that's in it." He'd never read a

book before where the author had put himself into it; but then, he wasn't *reading* this book. And if any writer could do such a thing, it would be R. Chilson.

Who still looked pretty rocky.

"Step into the *Wheat and Sickle* here and have a drop," said Hugh. "You could do with a bit of something stronger than ale, I'm thinking."

"Good thinking," said Sir Stanleigh. "And while we're out, you might give us your thoughts on this trellis of climbing lilies growing on wild rose vines. They were lilacs—" He and Hugh stared in astonishment. The trellis was covered again by creeping lilacs, their odor heavy in the air.—"just now," Sir Stanleigh finished weakly.

Chilson paused uncertainly before the trellis, clearly more interested in the cool interior of the tavern. Hugh explained the changeable flowers to him, trying to convey the puzzlement he and Sir Stanleigh felt. The writer was not impressed.

"He's—I'm—still writing the book, and still changing things around." Chilson shrugged.

"But why climbing lilacs—or lilies?" Sir Stanleigh said in exasperation.

Again Chilson shrugged. "Local color; something to make the setting exotic. And maybe a private joke on the readers, half of whom will read so quickly or carelessly they won't even notice."

Hugh began to wonder how much he had missed in reading R. Chilson, and became a bit miffed. He saw that Sir Stanleigh shared his feeling.

"Let's have that drink," said the famous detective stiffly. R. Chilson didn't seem to enjoy his ale as much as he might've, but when the thoughtful Maria served up three servings of shepherd's pie, he dug in gratefully, doubtless not having eaten since that morning. They became fairly comfortable over the smoking pie, but the great writer was definitely subdued, and under the weather.

"I make no doubt, Mr. Hesselstine, that we have here with us the true hero of this book. Eh?"

Hugh nodded; it seemed reasonable. "Can't think of any other reason a man'd write himself into a book," he said.

"Oh, well, sometimes writers put themselves in as minor characters who sort of comment on the story," said Chilson hastily.

"Not much point in that, not if you're dreaming the book up, like," said Hugh. "No, I take it there's an adventure hereabouts, and we're all brought together for it."

"An excellent suggestion," said Sir Stanleigh. He enquired of Maria if there was any trouble or danger in the town, criminals at large, that kind of thing.

Mildly wondering, she said, "No, naught but the dire beast as ate Will Honeycutt's pigges."

"Dire beast? Come, this is most gratifying," said Sir Stanleigh, rubbing his hands together, his eyes gleaming. "Outen the Dubious Forest," Maria explained. "Was there anything more, sir? Right."

Chilson looked even more dubious than the forest.

"What are these dire beasts like?"

"Don't know yet," said Hugh. "I've read all your books, Mr. C., and you've never mentioned 'em before.

But you're a very fanciful writer—eh, Sir Stanleigh?—so I expect they're something to see!"

"Quite," said Sir Stanleigh. "Pity I didn't think to slip my Watson .39 into my pocket, but I was on a holiday excursion. You'll have to dispatch the brute with spear and sword."

"Aye," said Hugh. "No doubt mine host can lend us the wherewithal."

Mine host was not within, but the hostess, though rather surprised at this desire to go forth to battle, was not unhelpful. She produced an old sword and long knife from over the mantle in the snugery. Setting the hostler's boy to sharpening them, she remarked that there was a ten-foot spear on the rafters of the shed, wrapped in oiled cloth.

"That's all very well," said Sir Stanleigh. "But how about a bit of armor, eh?"

There was none to be had, but Hugh had always had to make do with the materials at hand and suggested the scullery. And indeed, he immediately lighted upon a small three-toed iron pot of just a suitable size to fit over the great author's head.

"We can tie a plume to the legs, and handles'll serve to fasten it on," he said, and rove his handkerchief through them and under R. Chilson's chin.

"You realize I've never used a spear, sword, or knife in my life," said R. Chilson worriedly.

"Not to fear; no doubt the you that's writin' this adventure will think of everything," said Hugh soothingly.

The author grunted and stared out into the back yard while he and Sir Stanleigh and the hostess conferred about body armor. Out there, a small red-headed boy pounded sticks into the soft ground with his father's hammer, singing a song whose chorus was: "Tell me a story, tell me a story, remember what you said."

"Carpeting!" said Sir Stanleigh. "Capital! Two of those small throw rugs rolled up and draped over his shoulders will protect him from most blows."

"We'll belt the ends of 'em around his waist," said Hugh practically. "But how about his arms and legs?"

"Leave the arms bare for the sake of motion. The legs? Hmm."

"Mebbe more carpets?" Hugh asked.

Mine hostess went to fetch them. Outside, the boy's song went on: it was a small boy who bedeviled his busy father for a story at every turn. Finally one night, as the harried father returned from birthing lambs after midnight, the boy sprang out with his eternal chorus of, "Tell me a story."

Hugh and Sir Stanleigh commenced rolling up the rugs, while outside, the maddened father said, "I'll tell you a tale you'll never forget," and the boy cried, "Ouch! My tail is red!"

The hero of the book seemed decidedly glum as they sought to insert his legs into the carpet rolls. "Cheer up, it won't be so bad as all that," cried Hugh, clapping him on the back between the rugs. "It could be a lot worse nor this. Why, you could've arranged to have yourself crucified." ♦

The Number of the Sand

George Zebrowski

There are those who believe not only in the infinity of number but in actual infinity, and others who deny it, yet claim that the number of the sand cannot be said because it is too large.

—Archimedes

Hannibal dismounts and walks out into the center of the valley of Zama, followed only by his interpreter, a trusted veteran of the Italian campaign. Scipio also approaches with only an interpreter. At each general's back, unseen armies wait in the hot Tunisian after-



Illustration by Laura and John Lakey

noon. The two leaders stop half a dozen steps apart and regard each other in silence.

Hannibal is the taller and older figure, with a sun-burned face half-covered with a cloth that hides his graying hair. He turns his head slightly to benefit his good eye.

Scipio seems tense as he stands bareheaded, holding his helmet, but his expression is that of a proud, handsome man. There is gold inlay on his breastplate, but no other mark of Roman military rank.

"Do you prefer Latin or Greek?" Hannibal asks in Greek. "I know of your interest in the Hellenes."

"It is one of your loves also," Scipio replies. "I've heard that you write in Greek."

Both men glance at their interpreters, then return their attention to each other.

"They will only witness our discussion," Scipio says. "Neither of us needs the delay of having our words repeated."

Hannibal nods at this sign of respect, then stands straighter and shifts his weight to his right leg. "Luck has been with you, Consul," he says, "but we both know that good fortune cannot continue unbroken."

Scipio draws a deep breath and says, "Fortune had little to do with the fact that you were compelled by obvious necessity, and your own honorable character, to leave Italy and come to the defense of your native city. All wars must aim at a truer peace."

Hannibal smiles. "Why be modest? The necessity was of your making, and might have been otherwise." He pauses and waits for a reply, but Scipio waits longer, and Hannibal at last says, "You and I seem to be the only ones who understand that war should be a way to a more lasting peace. Our peoples will only benefit if we end our conflict here and now."

"What do you offer?" Scipio asks.

"The islands," Hannibal says, "even the smaller ones, such as the Malta group, between Italy and Africa. Carthage will also give up Spain."

"But this is less," Scipio replies, "than the terms of the armistice already signed in Rome."

"Which you drafted," Hannibal says quickly, "whether signed by your government or not."

"You offer us our own terms," Scipio counters, "but without the surrender of war vessels or the return of deserters and fugitives in your ranks." The Roman general raises a hand. "I know that they make up the majority of the army with which you fled Italy, and I realize that you will not betray your veterans, but I cannot accept less than Rome's original terms."

Hannibal sighs and nods. "I knew there was no possibility of peace between us, but I wished to meet you, and I do not regret it. We will have to attempt to destroy each other's force. Neither of us can shirk that duty."

The two men gaze at each other for a long, frozen moment, then make gestures of salute and turn away. . . .

A sea of simmering noise swallowed the scene at Zama. The historian ended his first observation of the meeting between Scipio and Hannibal in North Africa, near Car-

thage in the year 202 B.C., as the first step in his *New Study of History*. Any randomly selected coordinate of any linear history would have served as well.

As the Prolegomena to his study, he had sampled numerous studies of history, observing how oral narratives gave way to the art of writing down a connected chronicle from surviving documents. This crude form of history was constructed not from a continuous flow of events, but from available, discontinuous samples; from these moments, no one could reconstruct any one true past, and the result was always biased toward the concerns of the investigating present.

When the first linear history machines became operational, the interpretive art of the old historians collapsed, as the whole linear range of human time could now be observed at any desired speed. The old studies of history were replaced by a half-million-year literal record, which could be observed at any point along its meaning course.

After nearly a century, despite the efforts of interpretive observers, the past became the dead past, because nothing usable could be learned from it beyond curious fact. As the old problems of history were settled, the world rushed toward a future event horizon of incomprehensibility, on the other side of which waited a culture so changed in its biology and goals that little of history would have any meaning for it.

Even when the cliometricron uncovered quantum history, access to the infinity of historical variants only continued to lessen the importance of history in human affairs. Everything had happened and was going to happen; no lesson that could be extracted from the past had any meaning to an accelerating history. All previously false histories of the past became true in some world. Lessons could be applied, imperfectly, to restricted sequences of human experience, in which the time of one generation and the next was essentially unchanged; but to be led by the past in a quickening time would shackle the future, if it could even be done. The universe was not a closed, self-consistent system; it was open, unfinished, and infinite in all directions, including time. Its true nature was mirrored in the incompleteness of both natural and mathematical languages, and in the failure of human law to keep up with emergent circumstances.

The cliometricron's ability to retrieve decaying, fading information from the cosmic background had extended the history machine's capabilities, but without any clear advantage for humanity beyond the satisfaction of scholarly curiosity. Meanwhile, the history machine's ability to show the past, even the immediate, fleeing past measured in seconds and minutes, made possible the emergence, after a stormy transition, of the first panoptic human culture. This transition included the so-called privacy wars, and led to the acceptance of peeping as the right of every human being. Since there was no way to blind the all-seeing eye, humankind had simply faced up to the fact of peeping with a new social stability based on informational nakedness, in which everyone was rewarded. The price of peeping was to be peeped. For the first time in its history, humankind revealed itself to

itself in a systematic way, settling many questions of individuality and human nature. Past humanity had only glimpsed itself through its poetries, fictions, and visual dramas; but now all curiosities were satisfied, and the result was greater understanding and compassion for some, and boredom for others.

Clomietricians continued to pursue greater issues, even though they routinely used linear history machines to verify the priority of their colleagues' areas of interest, personal as well as professional, and avoided poaching on all staked claims. But the profession always avoided facing up to the question of its legitimacy, which seemed irresolvable.

There could be no complete history of histories. Events ran to infinity in all directions, diverging at every moment, at every fraction of a moment, at every point in each variant of space-time. Yet this process always meant something to the interiors that were intelligent entities; even when it seemed to make no sense, meaning was felt. The clomietrician watched the embarrassment of the old historians as they were confronted with the living past—and their denials as they drowned in the ocean of truth, claiming that it was all a simulation constructed from massed data by imaging programs. They could not accept that human history was one of the masks of chaos, behind which there was nothing.

In the first hour of horizon light, a sleepless Hannibal watches from a hillock as the elephants stir and begin to advance. Behind them are Mago's men—silent Ligurians, complaining Gauls, wild Moors, and a small group of Spaniards. Well drilled, heavily armed, and battle-wise, the men advance shoulder to shoulder. A second force of Carthaginian recruits, led by the aging Hanno, advances behind the elephants, followed by the third force, Hannibal's veterans, the army of Bruttium, which deliberately lags behind, and is all but invisible to the Romans in the gray morning light.

Only Hannibal and his waiting messengers know why this is not his usual long battle line. If all goes according to plan, three separate battles will be fought at Zama.

But despite the starlit start of his first force, Hannibal sees that the Roman force is already moving across the valley, its standards a slow-moving fence, flanked by horsemen. Three ranks of machinelike infantry—front, spearmen, and supporting legions of *triarii*—come forward. There are puzzling breaks in the line, which are defended by only a few javelin throwers.

As the armies collide in the same place where Scipio and Hannibal had met, the Roman horns and trumpets cry out, startling Hannibal's elephants. Many of the beasts panic and rush into the openings in the Roman lines, where they are greeted with swarms of missiles and herded through the lines to the rear. Confused, the remaining elephants turn and charge the Carthaginian cavalry. Scipio's mounted force scatters Hannibal's horsemen. They struggle to regroup and fight, but are too few for Laelius's and Masinissa's squadrons. The massed riders move off as a single storm, out of sight.

Hannibal watches as Mago's Gauls and Ligurians lock

man to man with the first Roman line and bring it to a stop; but the *triarii* slip through the openings, and the Roman line surges forward again. The second wave, Carthaginian recruits from the city itself, fails to relieve Mago's force, because Hannibal has ordered his three forces to keep apart. The survivors of the first wave retreat and turn with rage on the Carthaginian recruits, who push them back as the Roman line drops its spears and javelins and advances with shields and swords, supported by second-rank spearmen.

Desperately, the Carthaginians hold back the legions, but by late morning the last of Hannibal's two forces breaks to the sides of the valley, leaving the ground strewn with the dead and dying.

On his hillock, Hannibal knows that he must now send in his third force, the ten thousand veterans of Italy, who stand waiting for the moment when Scipio can no longer retreat, while on either side the survivors of the first two waves regroup.

Trumpets command the Romans to remove their wounded, recover weapons, and clear away debris. The standards still fly as the men drink water and rest.

Then, in response to swift new orders from Scipio, the three lines reform. Spearmen move off to one flank of the front line, the *triarii* take the other. The Roman line lengthens far beyond Hannibal's, and closes in on the weak Carthaginian flanks. The armies are equally matched now, except that Hannibal's veterans are fresh, and they have never known defeat at the hands of the Romans.

Suddenly the Roman cavalry returns—and charges into the rear of Hannibal's veterans. There is no Carthaginian cavalry left to stop them. The army of Italy is caught between the infantry and horsemen. The Brutians turn to defend their flanks and rear.

They fight and die across the afternoon, until nearly all are killed. Hannibal sends a message to Carthage, counseling acceptance of all surrender terms, and with a few survivors flees eastward.

The historian returned to the first meeting between Scipio and Hannibal, and listened again to their great-souled but hopeless words. Then he crossed the lines, watching the variations.

A servile Hannibal admitted his crimes against Rome to a pompous Scipio, mouthing the words of Livy's history, which was true here and a lie elsewhere. The Tunisian landscape seemed frozen. Grains of sand hung suspended in the air at Zama. Hannibal's headcloth disappeared. He wore a patch over one eye. He became stooped, then stood taller and lost an arm. Scipio appeared, now wearing his helmet. Insignias of rank appeared on his breastplate. The two leaders spoke only through their interpreters, who seemed changeless. The view-tank flashed as the historian paused. Scipio and Hannibal were conversing from horseback.

"They hate me back in Rome," Scipio says in Greek, "and that hate will only increase if I defeat you here. There are those who fear my success."

Hannibal smiles and says, "I, too, am disappointed

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with the city I left behind as a boy. The fat rich rule it for their sons and daughters. Honor is dead."

"You might restore it," Scipio answers, "if you became its just ruler."

Hannibal laughs. "Your Senate will not tolerate a Carthage with me at its head!"

"But it might not fear a Carthage without you," Scipio answers.

Hannibal considers, then says, "You and I will not fight, then. Will you give me your word that Carthage will not burn?"

Scipio nods. The two men clasp arms, then turn and ride away.

The historian cut across the variants and found Hannibal alone again, looking out across the empty valley of Zama, where there had been no battle. Was Hannibal thinking of how he could have won? Was this aging soldier still in love with the craft of battle as he rode away, hoping for peace?

But in this variant Rome betrays Scipio, replaces him as commander of its forces in Africa, and burns Carthage to the ground. Scipio commits suicide. In Bithynia, far to the east, Hannibal receives the double news with sorrow, and drinks poison in the garden of his house as Roman soldiers approach. A servant flees north with Hannibal's memoirs, forgetting the last piece of parchment, which lies on the table before the dead Carthaginian. In this variant, the writing reads: "The anxiety of the Romans is at an end. I am the old man for whose death you have waited so long. There will be only one Rome, but it might have been Rome or Carthage. . . ."

While at Zama, the three battles that became one defeat flare across infinity, and each of its three struggles is an infinity, changing through infinitesimal steps. The Roman horsemen do not return, having been ambushed by the sons of Syphax and their Numidian cavalry, leaving Hannibal to an honest test of his Bruttians against Scipio's weary infantry. A few variants earlier, the Roman cavalry had arrived, but too late to save Scipio; and before that only at half strength; and before that . . .

The historian watched Carthage destroyed, then built up into a Roman city because the site was too good a center for commerce to be ignored. He watched Rome leveled and raised into a Carthaginian city, for the same reason. The variants ran through endless minor differences in these two outcomes, until he left these lines behind.

He could have of probability what he wanted—but what was it? An endless flickering structured out of nothing, differentiated into individual things by measurementlike interactions among components, copying itself endlessly, providing examples but no prescriptions. These could be studied definitively and forever, but to no end. There was no wall around past quantum-transitional time, so he could have of it what he wanted, even though he could not stand apart from its infinity and see it whole. Only the quantum future was forbidden, even to licensed historical observers, whose linear and quantum history machines were restricted by basic design. There had been a time when the study of history

had called for a concern with the future, then with alternate futures, extending the study of the past toward the creation of desirable futures; but the quantum-transitional cliometricron had stifled that new history. Futurity's informational influx into the past was feared and prevented; and yet there had to be variants in which it was embraced, where cultures of past and future mingled informationally without fear, because they understood that the stuff of being was blossoming into 100^{100N} directions, matter and living flesh metamorphosing toward distant, ever more tenuous and mysterious states, and that these conscious innards of time must huddle all their histories together. . . .

He imagined history whole—as a writhing, boiling cloud. Cliometricians hurled themselves through the enigma but could not stand away from it, which was what it would take to penetrate its mystery. Objectivity was ruinously relative, after all; no one could have history as a separate object of study, even though it seemed that way in the view-tank, without remaining part of it. . . .

In Spain, a year before crossing the Alps into Italy, Hannibal marries a princess of Castulo, a dark-tressed woman of the Olcades people, to help secure the frontier between the Silver Mountains, the Iberians, and Carpetanians, to strengthen the Carthaginian presence in Spain.

On their wedding night, Hannibal mounts Imilce from the rear, but after a few powerful strokes reveal her discomfort, he turns her over on her back. She receives him again and wraps her legs around his middle. Her long hair is at her sides down to her waist. Her lips and pale breasts swell as she nears completion. The dark-skinned Hannibal cries out, bringing joy to her face.

"Come with me!" she whispers as he relaxes and strokes her neck. "At Carthage we'll take passage to Greece, where you can take up the life of study that you have desired."

The Carthaginian shakes his head in denial. "War is coming. My city will perish without me."

"You flatter yourself," she says. "Others also understand what needs to be done. They will step into your place."

"But they don't love the craft of war as I do. They will never see what is possible, and fail."

"The Romans are not fools," she says, and closes her eyes.

A year later, high in a stone tower, Imilce gives birth to a son. Hannibal puts wife and child on a ship for Carthage and marches his army toward the Alps. All through the sixteen-year raid on the Roman peninsula, he carries with him his wife's parting gift—a small Greek statue of Hercules—and rejects the enjoyment of captive women. . . .

But across the variants, Imilce prevails. Word by word, their discussion in the bridal chamber changes through a thousand small steps, until finally Hannibal travels with her and his son to Greece, where he perfects his use of the language and writes a series of dialogues encompassing the experience of Mediterranean peoples. Carthage

withdraws from Spain. Rome is not roused from its republican state. The two cities prosper and make treaties of friendship, delaying the Punic Wars and the rise of imperial Rome by a century. . . .

The historian asked himself, what could it all ever mean? The significance of these varying moments had peaked when they were happening. No one else could have them from the *inside* except the original players. All historians tacitly entered the minds of past figures and imagined direct knowledge of their thoughts and feelings. Cliometricians were the extreme of panoptic humankind, which observed itself endlessly, down to the smallest details of life, displaying itself to itself, but never able to become one. . . .

Perhaps there should be walls around time, he told himself, and greater ones around individuals. The long-lived should practice periodic amnesia, following the way of the past's short-lived generations, because history is only important while it is being made. . . .

. . . but there is never an empty moment. History is being made all the time, so it is always important, even though he could not say how. *Being* was adding to itself endlessly, an infinite growing thing, branching, probing through a greater infinity of probability, springing from no soil and obeying no tropism. . . .

In the endless array of gossamer display tanks, each one an event horizon on quantum-transitional times that can be observed but not entered, the historian watches himself contemplating history from the center of an infinite web of information. Once in a while he glances over his shoulder at his unseen alternates, who see him turn his head; but he can only see into the regress of variants in front of him. Do all the cliometricians glance back simultaneously, as if the entire infinite set were one mind? He imagines that vast intelligence sitting at the privileged observer's point, where all regress stops, even though he knows there can be no such point. He could traverse billions of variants and still hope to reach the privileged point on the next try. Attempted passages across an infinity always generated the question: Is this an infinity, or only very large? Aristotle had denied infinity because it could only be defined, but never possessed.

The historian knows that he has lost his struggle with history. Infinities are tractable only when treated as

wholes, but the mathematician's way could never encompass the complexities of human events. He sits in his cul-de-sac and yearns for the closure that would end the dismay of infinities, the final, firm place to stand, from which there is no one to glance back to, where all perspectives converge into the sleepless eternity of perfect knowing that would never belong to him. He would never awake from the dream of history in which he was embedded and see it whole.

In the twenty years of wandering exile after his defeat at Zama, Hannibal is told by a Greek oracle that he will be buried in African soil. Untroubled that he will die before returning home, he writes his brief study of history in the house given to him by the king of Bithynia.

Across a million variants he glances out the window and sees Roman soldiers closing their circle around the house. He hides his manuscript in the hollow doorstone, then swallows the poison in his ring. In the billionth variant he learns too late that there is a place in Bithynia called Africa, and that this house stands on it. He smiles as he sits back in his chair, perhaps at the cleverness of the Greek oracles, and his life slips away before the Romans reach the house. . . .

In the same year, across the sea, Scipio also dies, and is buried outside Roman territory, in compliance with his last wishes. . . .

The soldiers break into the house in Bithynia . . . at the thousandth variant they find the manuscript in the stone . . . in the trillionth the room is empty, but under the table there is an open door into a tunnel that runs through the hillside to the harbor. Quintus Flaminius, the Roman commander, notices that there is a note on the table addressed to him. He picks it up and reads:

You are hardly a worthy descendant of the men who warned Pyrrhus against the poison prepared for them.

—Hannibal

He grimaces, peers into the hole under the table as if it were a tunnel out of history, then hurries outside to the cliff's edge and searches the sea. Hannibal's ship is halfway to the horizon, running with wind and tide to fulfill the Greek oracle's prophecy. ♦

A Brief History of "The History Machine"

George Zebrowski has been exploring the concepts embodied in "The Number of the Sand" for nearly twenty years. The original appearance of the idea was in a story entitled "The History Machine," which was first published in 1972 in *New Worlds Quarterly* 3.

Long-time readers of AMAZING® Stories have encountered the idea once before, in a story called "The Cliometricron," which appeared in the May 1975 issue and is reprinted on the following three pages. That story has extra significance for us and for George, because it was his first appearance in this magazine.

Jack Dann, quoted in editor Ted White's introduction to the original publication of "The Cliometricron," had this to say: "This kind of sf tale is a harbinger. Most 'hard' sf uses the hardware and technology which is a by-product of pure science; this story extrapolates on one facet of the philosophy of science; it uses the sf format to give flesh to otherwise inaccessible ideas."

In our estimation it's possible to get a fuller appreciation of "The Number of the Sand" by also experiencing the story that preceded it. So here, for the benefit of readers old and new, is . . .

The Cliometricon

Originally published in the May 1975
issue of AMAZING® Stories

George Zebrowski

This universe is constantly splitting into a stupendous number of branches, all resulting from the measurement-like interactions between its myriad components. Moreover, every quantum transition taking place on every star, in every galaxy, in every remote corner of the universe is splitting our local world on earth into myriads of copies of itself.

—Bryce S. DeWitt,
"Quantum Mechanics and Reality,"
Physics Today, Sept. 1970

The cliometricon visualizes alternate histories.

A standard history machine enables us to see history in terms of cause and effect. The cliometricon shows lines of might-have-beens as causal probabilities. Both types of apparatus are inaccurate to the degree that each leaves out the experience-of-events. This phenomenon must be supplied by the trained imaginations of licensed historical observers.

Slowly, subtly, the cliometricon draws the basic quantum transitional processes of time into itself, calculating probabilities (a more general form of causality) more like a banker than a gambler; and we see the stuff of time take 100^{100N} differing directions in the guise of matter and living flesh.

It teaches the class of historians who have been previously restricted to standard home-line history machines a sense of expanded contingency and complex determination. Clio, the muse of history, is wooed with measure and analysis far beyond the linear perceptions of normal observers. Alternate world-lines, we learn, are not mere probabilities in a bloodless realm, but realities in the finer structures of reality.

I am watching General Eisenhower as he walks along the white cliffs of Dover. It is raining and his face is hidden in the shadow under his cap. His eyes move his head to peer across the channel at the dark continent of Europa which seems now forever lost to the will of the failed invasion. . . .

In his mind rise up fearful bloody shadows of men

retreating, thrown dying into the sea by Rommel's defenses; whole divisions destroyed, burned and blinded by the relatively mild effects of tactical nuclear artillery. Lost, an entire world of towns and villages and cities, bordered in the east by a giant who will not rise again after being blackened into ash by the full-scale strategic fury of Hitler's thermonuclear whirlwinds. The giant who had been counted on to bleed the most is dead.

I push the clear tab for the If-Continuum System Interlock. Before me, in blue light, appears a figure like myself sitting before a machine with his back to me. On his screen appears another figure; and on his still another; and another, into the vanishing point. System Interlock mode functions check the world-lines for integrity. A breakage would show itself as a chaos frame filled with furious noise and random images.

Reality is a matrix of relatively fixed world-lines. If-points exist as potentials in each line. If-points extend themselves from a potentially contingent moment, though not from all such moments, and also become relatively fixed world-lines. It is the overlay of an infinite number of if-lines which produces the perceived experience of contingency, or choice, in an observer. The psychological reality of observers integrates if-lines.

Historians debate whether world-lines are diverging in absolute or relative space, or if they are converging to form an integrated statistically determined world-line. Breakages might be indications of unsuccessful integration processes brought about by unusually fluid thought processes of observers in different lines. As long ago as the 1970s Eugene Wigner had advocated a gross nonlinear departure from Schrödinger's normal equations, indicating what must happen when conscious observers are taken into account. Wigner even proposed that a search be conducted for possible effects of consciousness on matter. Today only a comprehensive System Interlock meeting of scholars might resolve this problem, and perhaps even help in the creation of an integrated line. But this does not seem likely, as not all lines have developed cliometric technology. . . .

Cliometrics is a tool of empirical research and record keeping—a significant improvement over the old

impressionistic, nondimensional, often univalent written texts. Written texts were always observer distortions, utterances rife with psychological reference errors; reference was made as much to the observer as to the vague historical *object*. The result was a directional product of the two, as well as an historical object of its own time. Experience and subjectivity (both important facts about observers) were conveyed only indirectly. The imaginative memory of so-called novelists was the closest thing to the direct scrutiny of today's licensed temporal observers.

Clometric technology recreates with precision directly from quantum physical sources, catching through physical implication the play of permutations on the experienced level. . . .

There is a wind at Thermopylae.

The Spartan defensive force has not arrived. The moment of might-have-been has passed. The initial *necessary* conditions were present, but the *sufficient* circumstances are absent.

The first Persian scouts are coming through the pass, shielding their faces against the wind. . . .

Five thousand Spartans will not lie dead on the rocky ground. Many will never see battle, siring hundreds of children instead. Greece will not be stirred by the death of Leonidas. He will die at the hands of a jealous husband.

As I watch, the efficient cause of all these things comes into view—furies casting shadows onto the stone-strewn landscape.

There are wings over Thermopylae, white wings in a sun-windy afternoon. War gliders from Athens. Created by Themistocles's physicists.

As the Persians stream into the pass from their ships on the shore, the Greeks glide in low and drop fireballs on the advancing horde. And when finally Apollo's naphtha runs dry, the gliders turn wings and disappear.

A second squadron appears, riding into the updrafts from the pass, rocking high above the reach of Persian arrows and lances. . . .

Eisenhower pauses at the chalk cliff's edge. He is a dark solid three-dimensional shadow in the light, a mere uniform stuffed with unseen flesh.

The screen lights up with an atomic flash, and I know that his flesh is disintegrating, his skeleton is melting. The fortress of England is crumbling. Shakespeare's original folios are ash upon the withering green. I turn down the light streaming from the screen.

Somewhere above, I imagine clearly, the pilotless bomber makes a slow turn and heads back toward the Luftwaffe field in France, where they already know what the bright western dawn means.

Rudolf Hess gets up from the remote control screen. An aide takes over while he goes to the bunker slits to peer out. The returning bomber is a dark insect against the bright orange cumulus of megadeath.

Eisenhower tumbles off the cliff, his torso pierced clean through by a bullet fired leisurely from the deck of the

submarine which only a moment ago surfaced offshore and is already beginning to dive.

In the periscope, Eisenhower's falling body looks for just a moment like a black spider floating down on a piece of web. The sea swallows his corpse as his aides look on. From a distance their faces are only patches of white.

The Spitfire aircraft will be too late to sink the sub.

We are the heirs of the old cliometricians, who in the twentieth century first married the muse of history to quantification. No one mind could see meaning in masses of data so huge that light-years of distance would be required simply to lay all the bits end to end.

But still the data was finite. It could be enumerated, and even interpreted with the help of our children, the computer minds.

Our task became harder, nevertheless.

The quantum of historical action is multifarious.

Probabilities are infinite. The store of alternatives is eternal, inexhaustible. Only this fact and endless individual events are absolute.

The practice of our profession is safely incomplete. The whole is divinely indefinable and mysterious.

Eisenhower swims to shore. Blood streams from his shoulder and mingles with the sea foam as he struggles onto a rock, where he manages to contain the flow until a boat arrives.

He watches as the submarine is sunk by Spitfires.

The cliometricon is an endlessly growing library of visual records (the visual form grew out of the entertainingly contemplative motion picture arts of the twentieth century). Parastatics, the technology of sub-molar engineering, led to the storage of infinite amounts of information within the infinitesimal folds of space-time below the Fermi threshold. Each record is filed with a library of assessments and statistical evaluations. Every observer bias is included and taken into account by the next observer. Naturally, the home-line receives special attention in terms of recorded bulk.

In that moment when he contemplates his plans for the conduct of the war, Eisenhower is joined to the ultimate enigma of time's flow—the forward direction toward a still formless future.

On the screen it appears as a shapeless chaos of the thing-in-itself, the substratum of all that is large and small, the malleable reality of infinite variation. This is, of course, only a visualization, unlike the real-time recovery of overlaid events, which are also considerably more regular.

In Eisenhower's mind it becomes a determination of decision, qualified by the probabilities of physical control during execution: he sees an invasion in which the landing is never made; all ships are sunk or turned back long before the landing barges can be launched; the army comes ashore but is driven back into the sea by an overwhelming panzer force; the Allies sweep across Europe,

only to be swept back by the Russian army whose commanders still remember Western intervention in their post-revolutionary civil war (Dunkirk repeats itself on a larger scale); the Allies use nuclear weapons to level Germany, and later all of western Russia. . . .

Between all these events, I can see an infinity of trivial variations and minor crises; while alongside these events lie radical alternatives and their variations.

The continuum of probabilities is infinitely crowded.

World-lines growing out of the past thrust insistently into a shapeless future. There is rest in the visualized presence of the formless chaos on the screen. Here I cannot retreat to a point where orderly patterns become visible—the point at which waves seem to be well concentrated around their average length and the quantum of action is negligible, the point in Schrödinger's equations where the shortness of wavelengths permits the classical world of Newton to come into being. Here lies the ultimate irrational. Here the agony of events has no meaning, except that I visualize them.

Individuals perish, but the eyes of intelligence endure, receiving the information which makes a universe exist, ending the chain of infinite regression and possibility of the indeterminate. Without eyes the thing-in-itself is cold and lightless—despite its energy—and alone. The waves of confusion and possibility do not coalesce into solid matter; touch and sight cannot be born.

The consciousness of observers creates time and history. Objectivity is relative, but no less real.

Eisenhower shivers at Dover. Turning away from the sea, he walks up the path to his jeep. He cannot be sure of his world. He can plan, decide and carry out while hovering at the abyss of uncertainty, an edge more fearful than any cliff. In the firmament of time, his character will play all possible roles, an endless fresco painted by the muses of biology and physics. Armies will struggle, are struggling, as I watch him drive away. . . .

I push the *minor* System Interlock and watch myself watching him drive away, toward where the road runs close to the edge over the gentle breakers below. . . .

The road gives way. I cannot see the effect of Eisenhower's trivial death on my face, unless I turn around and watch my copy do the same in the mirror which I have set up illegally behind myself. I turn around, knowing that I am violating the personal peeping prohibitions. But this is the first time, and perhaps the corps of watchers will not notice.

I want to feel what my alternates feel, at least one. I want to feel his face in mine. I want to know at least one other of the army of observers which fills up the abyss within me. After all, they are all within me, and I live in them. I will risk my tenure and the practice of history-as-usual for this.

A face appears—my own, but much older.

"What do you want? A prolonged link is a violation."

"I want to talk to you."

"There is no time!"

I panic and push the button for a resumption of normal flow.

The universe moves with sleight-of-hand, the unknown becoming known, time unfolding, ignorance leading to discovery and knowledge. I feel the anguish of space-time in a night land chilled by endless icy stars. Time and I unwind from darkness like a glittering snake. Time is the dark pulsing body of the serpent, and I the glitter. Psycho-physical parallelism is the central fact of history. . . .

Oppenheimer, Teller and Eisenhower visit the ruins of Moscow, now leveled by strategic nuclear weapons of only low yield, while a world away Speer seeks to recruit Einstein and Bohr for work in the victorious Reich. Teller and Oppenheimer have committed suicide. . . .

Leonidas lies dying in the pass at Thermopylae.

Possibilities are slowly fading from his face, along with the late afternoon sunlight. The soldiers around him look like hard-shelled beetles in their armor. His face is my face, his thoughts my own as death steals over him. . . .

There are some who deny the possibility of deducing macro-events from micro-quantum events. The heresy states that what we see on the screens of the cliometricron are imaginative extrapolations based on the wealth of facts and assumptions inherited from the past. Bryce S. DeWitt, a professor of the twentieth century, had recorded that "The quantum realm must be viewed as a kind of ghostly world whose symbols, such as the wave function, represent potentiality rather than reality." If-lines are not real.

Yet . . .

. . . Leonidas *thinks* as he lies dying, and his thoughts press into me. Time passes, he whispers, and I feel vague changes inside, wondering what is this *effort* of time passing, this changing which seems not to change, this journeying near the shore with no goal in sight? Familiarity has dulled the questing in me, hiding enigmas in the robes of everyday, preventing unmapped thoughts. Does time pass where there are no heartbeats? If I could only hold myself perfectly still, stay the mortal blood passing from me into the earth, then I would hear time pass near while never touching me. It would continue to write in the ephemeris of the ephemeral, changing the shape and shadow of all living things, excepting me. . . .

An atomic flash, followed by a xenomorphic mushroom.

Oppenheimer says, "I am become death, the shatterer of worlds."

Endless worlds, or the ghosts of chance?

This heresy has the power to consume me. ♦

Fireballing



Gary W. Herring

"Painter and the crew are dead."

The Tsarina's matter-of-fact announcement crackled over the radio, and Steve swallowed hard. One of the fireballers swore softly, but beyond that, the other ten men and women in the shuttle's passenger cabin showed little emotion. Steve realized that they'd been expecting the news. Everyone in the Flying Circus had spent more time in space than he had—some of them lived up here—and most must have guessed what had happened as soon as they'd felt the tremor that had run through the shuttle barely an hour ago. The automatic seal on the door to the cockpit and the red warning lights had clinched it. The Tsarina had merely made it official.

Steve had been staring mesmerized at the flashing lights while the Tsarina had suited up and gone out the airlock with the young man called Dragon. It occurred to him that he ought to be taping this. His editor would have convulsions if he found out that Steve Hart, daring vidjournalist, had let a story like this slip by him. He glanced out a porthole at the Earth, far below, and decided that Chuck Anzalone was the least of his problems now.

"Stasya," Captain Spalding was saying into a radio from a

Illustration by Debbie Hughes

survival kit, "is the airlock still working? Can you get into the cockpit?"

"We're already in, Jeff," the old Russian answered. "There's a hole in the hull I could drive a tractor through. Thrust and attitude controls are gone altogether. Radio is badly damaged. We can't reach anybody with this. Some damage to the computer, but . . ." There was a pause, and then the Tsarina gave them the rest of the bad news. "Jeff, this hulk is falling out of orbit!"

There was more cursing from the others, a lot of it this time. Steve looked around blankly. Captain Spalding looked grim. "Are you sure, Stasya?"

"Positive," came the reply. "Either they were about to make a correction when things went blooey, or the impact or explosion or whatever knocked us off course. Whichever, this boat's got maybe three hours before she starts re-entry."

Now Dragon's voice came over the radio. "They'd have started looking for us when our radio signal stopped, Captain, but unless there's somebody passing close by, three hours ain't enough time for anybody to reach us."

Steve felt a roaring behind his ears. The shuttle was a pressurized cylinder built to carry cargo and passengers between geosynchronous and low-earth orbits. It wasn't meant to enter the atmosphere even with a crew and controls.

"Stasya," Captain Spalding asked, "do you see any reason why we can't go ahead and jump?"

"We won't stand much chance of hitting our targets," the Tsarina replied, "but I don't see any other choice."

"Waitaminnit," Steve blurted out. "What about me?" He looked around at the fireballers. "You can't leave me here!"

"Don't plan to," Captain Spalding assured him. "You'll be jumping with us. We'll try to recalibrate Painter's rig."

"Jump with you," Steve repeated stupidly.

"You're going to be re-entering one way or another, Hart," Captain Spalding smiled. "Your best chance is to do it without a ship."

The radio must have picked up the conversation, because Dragon suddenly crowed, "Hey, journalist. You's gonna get some local color!"

"Fireballing?" Steve asked in disbelief. "You want me to interview some fireballers?"

"They call themselves 're-entry clubs,'" Anzalone said. "Personally, I call them crazy." The editor of the south-east branch of VideoNews leaned back in his chair and smiled.

"It's a great little opportunity, if I say so myself. In two weeks a re-entry club called the Flying Circus is having one of their little flings up in orbit, starting with a party at Goddard City and a drop the next day. The Mother Earth Party plans to protest."

Steve grunted, unimpressed. This was hardly news. Public opinion had been slowly turning back against space for several years now, and the Mother Earth Party had quickly targeted fireballing as a symbol of "the mad waste of space exploration." Steve didn't see what fireballing had to do with exploration, but he was inclined to agree that spending good money to get your ass fried

riding a rocket engine down from orbit required an absolute contempt for all things sane and moderate.

"I suppose there's going to be something special about this protest," he said. Anzalone nodded happily.

"When fireballers throw a drop party, they have to register their target sites—the areas they'll be trying to land in. That info's public, and a fireballer can usually count on a little crowd joining the support crew that'll be waiting to meet him. This time, there'll be an ME protest group at each site, ready to hassle the fireballers and grab the show. Both the Flying Circus and the Mothers have agreed to let us send a reporter along with each group. You drew the fireballers. Follow 'em around, find out what makes 'em tick and send us some interviews. Then pix 'em jumping. If you can get some pix of somebody in re-entry, great. Pix of somebody burning up would be perfect. Meanwhile, I'll have Ruiz taping the protests." Anzalone beamed. "Play it right, *paisan*, and you might finally get that Videoguild award."

Steve stood before the little office's only window and frowned at the Atlanta skyline. There'd been talk of an air alert yesterday, but last night's sudden shower had washed the sky clean. You wouldn't think Atlanta had a smog problem to look at the city now, but that meant he'd have to be careful catching the bus home tonight. At least bad air kept most of the muggers indoors.

He'd never been in orbit before, and it was an experience he could do without. There'd be no point in asking to cover the Mothers, though; it wasn't his image. Steve Hart went where the action was: Jerusalem, Mexico City, Des Moines. Couldn't let the fans think he was scared of heights.

People pay good money for a weekend up at Goddard, he told himself. You're going on an expense account. Nobody's asking you to jump out of a spaceship.

Besides, it *was* a good opportunity. A story blasting fireballers would tie in perfectly with popular sentiment right now.

"When do I leave?" he asked.

"Look at the bright side," Dragon said. "You came along to shoot some pix, and there's no reason you can't leave the camera rig attached to your helmet. You can pix your own drop."

Steve wanted to tell the scrawny little deadhead to go to hell, but his mouth was too dry. Cheryl Vasquez looked up from recalibrating the PARV's guidance computer.

"Shouldn't you get into your gear, Dragon?" she asked. "You're only distracting me here."

"Yeth, Mommy." Dragon grinned and left, giving Steve a wink.

"He gets on our nerves too, sometimes," Cheryl said. "But he does good work." She nodded to where Dragon had wired the PARV's comp up to the helmet display of Steve's bulky, rented p-suit.

"How're you coming?" Steve asked. His voice sounded hoarse in his ears. Hardly the calm, confident tones of a daring VJ.

"Just about done," Cheryl replied. "You're a little smaller than Painter was"—she swallowed and continued—

"but your suit's bigger than any of ours, so you'll mass about the same, all together."

You bope, Steve amended silently. He knew damn well she was calculating by the seat of her pants. As she finished, he looked over the vehicle he'd be riding down to Earth.

Officially, a fireball was known as a portable atmospheric re-entry vehicle: PARV for short. It had been originally developed by the Soviets as a sort of parachute for cosmonauts in low-earth orbit, and the design had been adapted by a dozen other space-going agencies. The first civilian re-entry clubs had appeared fifteen years ago, and the first sporting model of the PARV had come along a couple of years later.

Painter had been new to the sport, so his PARV was pretty basic. Dragon called it a sissy because the heat shield was particularly thick. Steve had once seen some mock-ups of old spacecraft in a museum, and the PARV made him think of a Mercury capsule's skeleton. Struts of tough composite formed an open framework in the shape of a four-sided pyramid with a circular base three meters across. Atop the pyramid was a modular propulsion/guidance package: thruster, attitude jets, fuel tank, computer and parachutes. At the base was a couch for the pilot and a collapsed plastic mold for the heat shield. Control was provided by a joystick studded with buttons.

A fireballer dropped by strapping himself into a PARV and being shoved out the airlock of a boat in low-earth orbit. A press of a button inflated the mold at the base of the PARV with a quick-hardening ablative foam stored in canisters strapped to the support struts. Then the fireballer put the guidance display up on his helmet's faceplate, positioned himself just so and gave himself enough of a push with the thruster to begin spiraling down to the ground. Once through the ionization layer, the fireballer felt until an altimeter activated the parachutes that carried him gently to the ground.

If everything went right. If something went wrong, the fireballer usually died.

Steve wiped his forehead and put that thought aside. It was either make the drop or ride the shuttle down, and the shuttle would burn for certain. If Painter hadn't decided to visit the cockpit for a word with his fellow jockeys, there wouldn't be an extra PARV now, and God only knew where that would have left him. He felt grateful and guilty all at once.

He managed a weak grin, though, at the thought that his only chance of getting out of this mess alive was a dead man's fireball that had been rewired by a Dragon and reprogrammed by a Falling Angel.

There was a crowd of fireballers, tourists and Goddard residents around the video games. When Steve pushed through, holding his drink up out of harm's way, he saw one of the fireballers playing a game that supposedly simulated re-entry in a PARV. Steve switched his camera on and held it above the heads of the people in front of him. The game's video display came into focus in the camera's monocle eyepiece, and he noted with amusement that the young man seemed to be losing.

The fireballer wore a large red and blue patch on his right shoulder that read "Flying Circus Re-Entry Club," with the motto "We Who Are About To Fry Salute You!" around the border. Steve would have known the slender young man for a fireballer even without the patch: he was wearing metallic skintights with a scaly pattern that shimmered green and red. Bright green scales had been glued to his shaven scalp to complete the reptilian effect.

Compared to him, the rest of the Flying Circus was rather plain, yet they stood out among the tourists and residents who had joined the pre-drop party in the hotel's plaza. Captain Spalding, the mustachioed president of the club, was tricked out in a safari jacket and pith helmet. A woman who looked to be fifty or so wore an antique Soviet Aerospace Forces dress uniform with medals all over the blouse. The Tsarina, as she was known, had turned out to be a seventy-two-year-old retiree from Tirovgrad who claimed to have begun her career in space as one of the last crewpersons of the old MIR station.

A canned explosion and the good-natured catcalls of his audience signaled that the young fireballer had lost the game. He bowed, clearly relishing the attention, and started another. Steve had switched off his camera and was backing out of the crowd when he felt a tap on his shoulder.

"Finding what you're looking for, Mr. Hart?"

Steve looked around. Captain Spalding beamed at him and nodded to the center of the crowd. "Dragon never beats that machine. He's made fourteen drops—thirteen of 'em successful—but that game makes a fool of him every time. C'mon over to the bar."

Steve followed the Captain to the outdoor bar that had been set up for the pre-drop party. "Outdoor" wasn't strictly true, of course. Not 22,000 miles from Earth. Goddard City had been one of the first space-towns. It had been built primarily to house employees from nearby factories and the Arizona powersat, but its designers had foreseen the tourist market. The Goddard Hotel was smaller and less luxurious than its later rivals on the Moon and at the Lagrange points, but it offered a close-up view of the Earth that was breathtaking, and the hotel plaza was a lot like a park with its trees and gently rolling lawn.

Once Steve had gotten used to the coriolis effects and the one-fiftieth gee of the tourist level, he'd started enjoying himself. He'd even screwed up enough nerve to rent a set of plastic wings and take one of the hotel's free batwinging lessons. Anzalone had insisted on that. Steve Hart, that daring VJ, wouldn't go into space without trying on some wings. He'd managed to glide across the plaza and back without looking too foolish.

"Sorry it's taken so long for us to get to you," Captain Spalding said as they belled up to the bar. "We tend to arrive a few days early for the drop and spend the time going over our rigs. Somebody should've warned you."

"S'okay," Steve assured him. "I took a few tours. I needed local color." Actually, he had more local color than he could ever use. Goddard was old news, but with the Flying Circus holed up with their equipment and definitely not interrupting safety checks for interviews, it

had been either see the sights or spend two days banging his head against a wall. The time hadn't been wasted, though. He'd settled on an angle for the story.

Goddard, like fireballing, was high on the hit lists of several pressure groups. It was the same basic line: the money spent supporting the space cities and their attendant factories and labs could be spent to better effect at home—i.e., on whichever project the speaker's outfit supported. Privately, Steve wasn't so sure of that. The initial investments had been enormous, but Goddard and many of the older projects were self-sufficient now. He could draw a clear contrast between the idiocy of fireballing and the useful work being done here. All he really needed now were a few short interviews.

When Captain Spalding had gotten his beer, Steve switched his camera back on and aimed it at him unobtrusively. "You said the man at the video games has made thirteen successful drops out fourteen tries," he said. "How can anyone unsuccessfully re-enter the atmosphere in a PARV and survive? Don't you burn up?"

"Burning up is only one of the things that can go wrong with a drop," Captain Spalding replied, wiping beer from his mustache. "Dragon can spin you a better story, but the bottom line is he miscalculated his angle of re-entry. He bounced off the atmosphere and back into space."

"Is that dangerous?" Steve asked.

Spalding shrugged. "Depends on whether you've got enough fuel left for another try. Dragon didn't, and the shuttle that had dropped him was out of range of his suit radio." He took another swig of beer before resuming.

"Ninety-nine times in a hundred, that would've been it for Dragon. He got lucky, though. He wound up close to a Japanese shuttle doing some satellite repair. They heard his distress signal, picked him up and took him down to Earth. Longest longshot anybody ever heard of. We still rib him about it; the shuttle was named *Serene Dragon*, and that's how he got his club-name."

Steve looked back at the gaudy young man playing the video game and shook his head wonderingly. "Where did you get *your* nickname, Captain?" he asked.

"Old videos," a woman's voice said. "Hi, Captain. Hooray, hooray, hooray."

The speaker was a slim, athletic-looking woman with a Hispanic cast to her features. She wore a jet-black skintight-and-skirt with the Flying Circus patch on an armband. Her earrings and necklace were made of chips of milky gray stone set in thin gold wire. The chips were shot with veins of yellow, and Steve nearly choked on his drink when he realized that they were thin, polished wafers of gold quartz. The young man with her was plain by contrast, wearing slacks, shirt and a jacket that bore the club patch and a shuttle pilot's badge.

"Hi, Angel, Painter," Captain Spalding said. "Steve Hart, meet Falling Angel."

The woman offered her hand. "My real name's Cheryl Vasquez. Pleased to meet you, Mr. Hart. I've seen a lot of your work."

"Thank you," Steve said as he took her hand. "You know, you're the first to offer me your real name."

"Not surprising," she replied with a smile. "Clubs tend to be tight-knit; nobody's sure yet if you're friend or foe."

"But you are?" Steve asked with a smile of his own.

Cheryl shrugged eloquently and ordered a scotch. Steve turned to her companion. "George Painter," the fellow said, shaking hands. "This'll be my first drop, so no nickname or titles yet. That'll change tomorrow."

"Pleased to meet you," Steve said. He looked from one to the other and asked, "As long as I've got the three of you right here, can I ask a few questions?"

"Shoot," said Captain Spalding.

Steve openly trained his hand camera on the Captain. "So tell me," he asked, "how did you get started in this"—he paused for effect—"hobby?"

"Through Stasya." The Captain nodded in the Tsarina's direction. Steve panned and took a shot of the old soldier. "She'd made a few drops in her service days," Captain Spalding said, "and she kept it up after she retired. She started the Flying Circus."

"Curiosity, in my case," Cheryl said. "I'm a systems designer at Moonbase. Some people from the club hired me to customize the computers on their PARVs. To understand what was needed, I made some practice drops on the Moon and—"

"Wait," Steve broke in. "Practice drops on the Moon?"

"Sure. You have to modify the PARV a little, but with the low gravity and no atmosphere, the Moon's just about ideal for a beginner. Anyway, the practice drops hooked me."

Painter grinned nervously when the camera turned to him. "I guess I got curious too."

"It all sounds expensive," Steve said. "How do you justify spending money on such a frivolous hobby?"

"Since it's our money," Captain Spalding retorted, "I don't see why we have to justify anything." Painter nodded vigorously. Cheryl gave Steve a sharp look.

"You can ask that about any hobby, Mr. Hart," she said. "Skiing and mountain climbing are expensive too."

"Nothing like buying and maintaining a PARV, surely," Steve said. "Then there's the trip to orbit, shuttle passage to your drop point, the fees and paperwork. In your case, Ms. Vasquez, there's the trip back to the Moon when you're done. I'm sure there's more that I've left out."

"It can get costly," Captain Spalding admitted. "The clubs help share the burden. Fortunately, most of us work up here. We're handsomely paid."

Steve smiled crookedly. That remark wouldn't endear the Captain to the minimum-wage voters on the ground. "Okay," he said, putting just a bit of skepticism in his voice to show his fans that the answers he was getting weren't *really* satisfactory. "Why do you do it? What makes you spend so much money and risk a horrible death for nothing?"

All three fireballers were silent for a moment. Steve thought gleefully that he'd stumped them, but then Painter asked, "Why not?"

"I beg your pardon?"

"I piloted the shuttle for a few drops before I joined the Circus," Painter explained. "Sometimes I talked to the fireballers. They all seemed so alive before and after

a drop. I want to see why." The pilot shrugged. "Could be that this one drop will be enough to convince me that it isn't worth it."

"You could get killed on your first try," Steve pointed out, using a voice of slightly derisive surprise this time. "Is curiosity worth that?"

"I could get killed every day," Painter replied, making a gesture that encompassed the hotel's plaza. "It's as safe as we can make it up here, but I could get caught in a radiation flare, or my shuttle could be holed by a meteorite." He shrugged again. "You learn to deal with it."

Steve was silent as Cheryl and Dragon strapped him into the PARV and maneuvered him through the shuttle's cargo bay, toward the now open cargo lock. Cheryl began a final equipment check and Steve watched the other pressure-suited figures as they prepared to leave the shuttle.

He was going to be the first out. That made him sweat a little, though he knew that no one position in line was any more dangerous than another. Except for the last one. With no shuttle crew, the last man out would have to push his PARV away from the crippled boat and then strap himself in. The Tsarina and Captain Spalding had argued briefly and intensely over which of them would take the end of the line. The Captain was a veteran dropper, but the old Russian had more practical experience in free-fall, so Captain Spalding had given in with obvious reluctance.

It seemed to Steve that he ought to be reviewing his life right now, but he came up blank. That bothered him. He tried to calm himself by going over the quick lesson Captain Spalding had given him in piloting a PARV, but it all ran together in his head. Except for the part where the Captain had asked him when he'd last eaten and explained what happened if you threw up in your p-suit in zero-grav.

That really bothered him.

"You're okay, Steve." Cheryl's voice came over the suit radio as she knelt beside him. "When I tell you, activate your suit's emergency beacon. Remember, this button on the control stick releases the shield foam. The center toggle under your faceplate activates the helmet display. Switch it on as soon as you're out. Fuel read-out's on the bottom of the display. Optimum angle and speed are on top in red and your real angle and speed are below in white. Pitch and yaw are on either side. The most important part of the display is the target in the center: a white square with a red dot. The control stick moves the dot—keep it centered in the square."

She paused. He couldn't see her face through the helmet of her p-suit, but Steve could guess what was going through her mind. There were dozens of things she could tell him that would help his chances, but there simply wasn't time to explain them, and if she confused him . . .

"Cheryl?" he asked.

"Yes?"

"Can you keep a secret?"

"On an open radio channel?"

"Hart isn't my real name," he told her. "It's Hartselle." Silence, and then, "Why'd you change it?"

"I thought Hart was more telegenic," he admitted.

"I'm an actor, see. Somebody else pixes the news. I dub in the report from a hotel room miles from any trouble. The editors mix the two. Only time I'm ever on the spot is when I'm doing a live interview, and I take bodyguards along for those."

Cheryl held up a hand. "It's your life. You don't have to explain—"

"If I make it," Steve interrupted, "can I come to the post-drop party? As a guest?"

She thought about it and said, "Maybe. I'll give you a call after the drop and we'll talk about it." She reached over and gave his p-suited arm a squeeze. "Turn on your beacon."

Steve tongued the beacon switch on and heard Captain Spalding say, "All right, everybody. Time to go. Dragon, c'mere and give me and Angel a hand."

The three fireballers turned Steve to face outside and positioned him at the edge of the cargo lock. Wide-eyed, he looked out into infinity, his breath coming fast and rough. He remembered the vidcamera mounted on his helmet and reached up to turn it on.

"Luck, man," Dragon said. "See you at the party."

"Remember what I told you about the display," Cheryl said. "And good luck."

"Now," Captain Spalding said, and they pushed him out into space.

"Doesn't your life have enough risks without you looking for new ones?" Steve asked.

Cheryl laughed warmly. "You didn't have to come all the way to GEO to ask someone that."

It was late, and the pre-drop party was breaking up around them. Some couples danced. Dragon was still at the video game. A few people watched a portion of the lounge's media wall as it played a tape of one of the club's earlier drops. It looked like pix of falling stars to Steve, but the audience oohed and aahed and clapped.

"I'm serious," he said, with nothing in his voice this time but curiosity. "You're successful at your work. Living on the Moon, I'd say you're already an adventurer."

"Adventuress," she corrected him.

"What I mean is, what've you got to prove? You never told me why *you* do it."

Cheryl grew thoughtful and said, "I have more drops behind me than anyone, except for Stasya and Jeff, and I don't see all that much risk in fireballing anymore. I'm no daredevil. Stuff they do down on Earth—cave diving, bridge jumping—scares the hell out of me." The wall caught her attention. "That's me," she said delightedly, pointing at a crimson streak of light.

"The others were yellow or white," Steve noted.

"I added a chemical to my heat shield that made it burn red," she explained. "Watch. Dragon's coming up and his'll be green." When the green streak had flared and faded Earthward, she looked at him.

"What about you?" she asked. "You've got a reputation for taking risks for a story."

One Against All and All Against the
Saurons in a World Forever at War

CREATED BY
JERRY POURNELLE

VOL. III:
WAR WORLD

**SAURON
DOMINION**

AUGUST 1991

**WAR WORLD III:
SAURON DOMINION**

CREATED BY
JERRY POURNELLE

Born of rebellion and civil war, cut off from the rest of humanity after the Secession Wars, the planet Haven has been bombed back to a pre-tech medievalism by a race of hideous "supermen" intent on keeping the planet cut off from the rest of the empire while they slowly absorb all normal humanity into their own perverted form. Haven is a world forever at war, each with all and all against the Saurons. In Volume One we saw the destruction of the Saurons as a galactic power and the flight of a saving remnant to Haven. In Volume Two it looked for a while as if humanity might have a chance as Saurons warred with each other. But in Volume Three, the Saurons are poised to achieve Final Dominion...

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Steve smirked. "My editor'll be happy to hear that. Truth is, I go straight to a locale, do the job and then get out. I don't look for unnecessary trouble."

"And neither do I," said Cheryl. "Fireballing is a well-calculated risk. If the odds weren't in my favor, I wouldn't do it." She grinned and added, "Though if there weren't a little danger, there'd be no point in doing it."

"In other words," Steve asked sarcastically, "there's just enough chance of getting killed to make it fun?"

"Exactly." Her smile was challenging now. "And what do *you* do for thrills, Mr. Hart?"

Steve clenched his teeth against a sudden wave of nausea as the PARV tumbled end over end. His heart pounded, and the vast Earth passed before his visor and out of sight. Then there were stars, and then the Earth, and then stars. . . .

Cheryl's voice crackled in his helmet. "The foam, Steve," she shouted. *"Release the foam!"*

Steve pressed the foam release button with a convulsive twitch of his thumb and tongued the helmet display switch. The display from the PARV's computer appeared on the faceplate of his helmet, overlaying the stars that spun by. At one corner, the words FOAM RELEASE flashed in red. The target square sat in the center and the red dot was moving across the screen, disappearing at the bottom and reappearing at the top.

He couldn't do anything until the heat shield was in place, so he concentrated on the display. That seemed to ease his vertigo. Once more he thanked God that Painter's PARV was a beginner's model. The guidance display was fairly simple. It looked a lot like the display of the video game back at the hotel lounge.

The one that Dragon kept losing.

The flashing FOAM RELEASE was replaced by a steady blue SHIELD READY. Steve had to take the computer's word for it. He couldn't look around to see for himself. Carefully, he activated the attitude jets and moved the joystick. Numeric displays to either side of his faceplate began to change, but he paid closest attention to the red dot. Its passage across the screen slowed, slowed, and finally stopped. White crosshairs spun on the dot's surface, warning that the PARV still spun on its axis. He gently killed the rotation and centered the dot within the square, then looked through the display at his surroundings.

To his right was a vast, velvety-black field spangled with hard points of light. It made him think of Cheryl's gold quartz necklace against the black skintight she'd worn at the party yesterday. To his left was the blue-green disc of the Earth, too big for him to see it all. Great whorls of clouds obscured the lines of the continents. He was falling backwards between Earth and sky, but it seemed as though he were lying back upon a motionless couch and watching the black and the blue-green rise up around him and curve away somewhere above.

As he watched, a huge shadow appeared on the face of the Earth, sweeping from some point behind him and swiftly covering the globe like a nightmare tide. *Night, he realized dreamily. I'm over the nighttime now.*

He tore his eyes from the scene with an effort. The

pretty atmosphere would kill him if it could, and the stars wouldn't care in the least. He checked and double-checked the display. If the computer was working properly, if he was interpreting the information properly, he was ready to start down.

If.

He couldn't stay up here forever. He squeezed a trigger on the joystick and the PARV's main thruster came to life. A shudder ran through the vehicle as the rocket pulled at it, slowing it until it entered what Cheryl had called a transfer orbit. The display's red dot tried to leave the target square. Steve moved it back into place and braced himself for what was coming next.

When the PARV dropped to the proper velocity, the thruster would have to be cut. An experienced fireballer knew exactly when to do this and did it manually. Fortunately, Painter's PARV was automated. When the vehicle hit the edge of the atmosphere, something Captain Spalding had called aerobraking would slow it further and the thruster would no longer be needed. Steve watched as the velocity display fell and reached the cutoff point.

Nothing happened. The velocity passed the cutoff point and kept falling! The red dot jumped out of the target square and warnings flashed on the helmet display, telling him that the PARV was no longer correctly angled.

Swearing, he cut the thruster by hand and waited to see if the computer would correct the PARV's attitude itself. It didn't. The hurried rewiring and recalibration on the shuttle must have fouled the automatics somehow. He'd have to correct the angle by hand, and he'd have to do it fast.

Steve worked the joystick, trying to get the dot back in the square. *Think of it as a game*, he told himself. *Move the stick and put the dot in the square. It's harder this time. Time? How much time's left? How much fuel's left? Damn computer probably knows, but I don't know how to ask it.*

Sweat was running down his back in spite of the p-suit's humidity control. Below him, the Earth's surface seemed to pass by faster as he spiraled down. The red dot inched its way toward the center of the display as if it had all the time in the world. "C'mon," he chanted as it kissed the edge of the square. "C'mon. C'mon."

A hard jolt hit the PARV and the dot skidded across the screen. Steve manhandled it back toward the center. The PARV bucked again. And again. He was aware of a steady vibration running through the vehicle. Sparing a glance at the velocity readout, he saw that it was dropping fast. An orange glow appeared at the edge of his vision.

The atmosphere!

The vibration increased until he could feel it in his bones. He gritted his teeth, but the vibration made them chatter anyway. His hands locked on the joystick in a stranglehold. He gave up on keeping the dot in the center of the square; the way he was being shaken around, he could hardly see it anyway.

Around him, the orange glow lengthened into streams of fire that extended overhead like the walls of a tunnel,

just as if he were plummeting backwards into Hell. He fought an urge to try to look over his shoulder. The vibration roared through him. His heart felt squeezed and his breath hissed through his teeth. His jaw hurt from being clenched for so long. Overhead, the walls of the fire tunnel had met in the distance; the sheets of orange flame merging at the center of his vision.

And with a suddenness that made him yell, the flames turned a bright lime-green!

And then cherry-red.

And then cobalt-blue.

Steve gaped as the flames passed through a rainbow of colors. Then he recalled the colored trails he'd seen on the tape last night and he laughed as he realized what Painter had done. The novice had gone the old hands one better. He'd figured out a way to add ingredients for several different colors and have the additives separate out into their own layers when the foam material was setting up. The rest of the Flying Circus would've killed to be sitting where he was now, and that thought made him laugh louder as the flames turned a rich, royal purple and began to thin. Soon the burning tunnel was reduced to a few thick ribbons of fire, then to a sullen, smoldering glow, and finally nothing.

The altimeter read 50km. According to the clock, less than fifteen minutes had passed since he'd entered the atmosphere. *I'm through*, he told himself, and he felt faint.

When the altimeter reached 30km, the drogue chute deployed with a jolt that made him bite his tongue. The sudden pain and the taste of blood woke him up, and he wondered where in the world he was. The base of the heat shield was still intact, so he couldn't see the ground even if he twisted his head around. For all he knew, he could be heading for an active volcano.

"Heat shield," he muttered. "How the hell do you jet-tison the—ah!" He flipped the safety cover off a button on the joystick and thumbed it. The charred remnant of the PARV's heat shield dropped away, and his couch suddenly pivoted him into an upright position. He squawked with fright, but the couch's harness held him securely. Now he could see where he was going.

God, but it was still a long way down!

At five kilometers, the main chute opened. Now he was supposed to choose a spot to land. It was daylight. The terrain below was flat and grassy. Kansas prairie, or African savannah? The helmet display told him that his suit's emergency beacon was still broadcasting his position to any satellite in range. Good. It might be a long walk back home otherwise.

Handles on two of the PARV's struts worked the main chute's concealed steering cords. Skydiving was something else Steve had never done. Nonetheless, he managed to skirt some rocks before he landed. He did remember that you were supposed to bend your knees to absorb the shock of hitting the ground, but the impact knocked the wind out of him anyway. The PARV bounced and slammed the ground hard. The wind caught the parachute and dragged the battered vehicle through the grass. No one had told him how to jettison the chute, so

he could only curse and hope that his suit would save him from broken bones.

Finally, the PARV fetched up against some scruffy evergreens and the ride across the prairie was over. He lay there a long time, wheezing.

It was over. It was *over*. He could open his helmet now. Hell, he could take the damned suit off. He could see what was to eat in the survival kit. He could throw up if he liked. No, first break out the radio and see if there was a ride in calling range, then eat something. The rest could wait.

He undid the suit's collar seals and removed the helmet. The little vidcamera mounted on the helmet was still intact and running. He shut it off with a shaky chuckle. Then he remembered the tunnel of rainbow fire, and he grinned.

After some fiddling with the radio, Steve picked up the local emergency band and learned that he'd come down in Saskatchewan, just over a hundred miles from Regina. A rescue chopper picked him up a few hours later. He called Anzalone from the airfield and explained what had happened.

"I'm sending a plane," the editor told him. "Don't let that camera out of your sight. So help me, if there's five seconds clear enough to put on the air, I'll adopt you!"

They started reviewing the tape as soon as he walked into Anzalone's office. The resolution got pretty bad in places, but there were several spots where Painter's colored flames could be seen clearly.

"We'll do a voice-over to describe what's happening when," Anzalone said. "You can explain the vibration and everything. We'll play the clear parts in slo-mo to make 'em last. We can run the whole thing as a special right after the report on the accident." The flames on the screen changed color again. "Jesus," Anzalone breathed.

"Painter gets full credit for that," Steve demanded. He was ready for an argument, but Anzalone nodded.

"Sure, sure. We can work it up as a fireballer's masterpiece. A work of art from space. We can interview his friends."

The Flying Circus! Shit, he'd forgotten! "Any word about them? Did they make it down okay?"

"Here." Anzalone handed him a notepad. "Phone messages asking about you. First one came in half an hour before you called. That Dragon character is weird."

Steve scanned the list of names. Jeff Spalding, Stasya Bulganin, Dragon, Cheryl Vasquez . . . they were all there. They'd all made it down.

"I gotta use the phone."

"Sure thing." Anzalone was still watching the flames.

"And I'm using my real name when we broadcast this, okay? Hartselle, not Hart."

Anzalone nodded absently. "Y'know," he said, "the Mothers're gonna wish you'd bumt up."

Steve grinned and punched the number by Cheryl's name. The line rang once, and then Cheryl said, "Hello?"

"Hi." He groped for words. Finally he asked, "Where's the party?" ♦

The Glory of War



John Maxstadt

General Nelson's aide interrupted a staff meeting to bring the general news of a victory over the Red Army. A company of light infantry, led by Captain Thomas Jonathan Jackson, had stormed Tennyson's Ridge and broken the enemy line in hand-to-hand fighting, capturing the Red Army's artillery and routing the remains of their infantry from the field. Casualties had been high on both sides, and Captain Jackson had been among the fallen. General Nelson judged the news to be highly satisfactory.

The general's staff set its other business aside and considered the disposition of the casualties. As always, the wounded could be patched up and returned to the fighting, but the dead would have to be completely rebuilt. Fortunately, combat robots were much more easily repaired and reassembled than human soldiers had been. Even those that were utterly destroyed could be salvaged for parts and materials, eliminating entirely the waste that had once obscured the true nobility of warfare.

Illustration by Michael Weaver

There was no policy for dealing with deserters because there were no deserters. Artificial intelligence gave combat robots individual volition up to a point, but they were uniformly programmed for bravery, gallantry, and even heroism in battle. Permanently relegated to the past was the cowardly, selfish concern for life and limb that had so grievously tarnished the dignity of soldiery in the old days.

Standard procedure dictated that General Nelson's staff dispose of the casualties and survivors of Tennyson's Ridge according to the degree of bravery each had exhibited, even though most of the disparities had been caused by unequal opportunities in the battle. Most of the soldiers were simply repaired or rebuilt as necessary and retained in their former ranks and stations; those that had been in the Red Army had their allegiance programming altered. The more notable heroes from the winning side were slated for promotion. Those moving from enlisted status to commissioned rank would be re-tooled and reprogrammed accordingly.

Undamaged captives from the Red Army and other robots that had displayed deficient courage were modified and demoted to civilian status. General Nelson regretted the severity of this procedure, particularly since the standards for bravery had become stricter every year. However, some exchange between the military and civilian work forces was necessary in order to reward the most outstanding of the robots who labored without renown in the manufacture of sabers, muskets, and cannons, the most powerful weapons permitted under the present agreements.

General Nelson took the special case of Captain Jackson's remains under personal advisement and deemed the rest of the arrangements highly satisfactory. The general's staff accepted "highly satisfactory" as the general's highest praise. They knew that nothing would ever again be "entirely satisfactory."

The general's aide returned and announced that the Battle of Tennyson's Ridge had been officially declared a historic victory, to be chronicled by the foremost poets in the military think tanks. The principal hero of the battle had been Captain Jackson, a robot which had definitely added luster to the distinguished military history of the name it had been assigned. Also designated as official heroes were Lieutenant Colonel George Edward Pickett, Lieutenant Nathan Hale, Sergeant David Glasgow Farragut, Sergeant Alvin Cullum York, and Corporal George Armstrong Custer.

All present were profoundly moved by the reading of the names of these valiant robots, who had laid down their lives in battle and who would surely be called upon to do so again. The general's aide, its duty done, turned and wheeled itself back down the corridor.

At length, General Nelson reached a decision on the final disposition of Captain Jackson's remains. The hero's electronic brain would be incorporated into General Nelson's own, and what could be salvaged of the captain's body would be used to repair and expand the general's. Mere captains were seldom accorded this high honor, but the general's staff agreed that it was justified

by the valor Captain Jackson had shown in combat; had that valor been any less, the remains could just as easily have been built into any one of them.

There was plenty of room for dozens of Captain Jacksons in General Nelson. General of the Blue Army Horatio Lord Nelson was a vast and diverse robot, whose body encompassed the entire Command Complex and whose electronic brain supervised all operations from the movement of battalions to the everyday functioning of the autofarms that produced fuel for the robots and fiber for their uniforms. Victory by victory, the Blue Army and its general were growing larger and stronger. By the time the Red Army was defeated and its general destroyed, General Nelson would be ready to split into two complete and independent generals. Half of the staff and troops would follow each, just as they had done when the Red and Blue Armies grew out of the old Purple Army, which had defeated the Orange Army in the previous war.

Quite literally constructed from the minds of heroes past and present, General Nelson's consciousness was uniquely qualified to appreciate the glory of war as waged by robots in the twenty-third century. It was all poetry and no suffering, all color and pageantry and no mud and squalor, all patriots and heroes and no widows and orphans. It had become what it was always meant to be—the noblest and most beautiful achievement of humankind. General Nelson considered every aspect of it to be highly satisfactory.

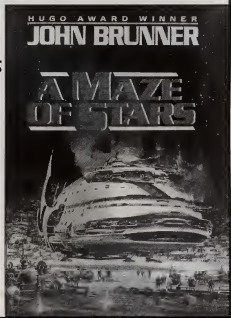
If humankind had not been accidentally extinguished prior to the weapons limitation agreements, it would all have been entirely satisfactory. ♦

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In the Lowerarchy of the Underpinning



William John Watkins

T-Char worked in the Underpinning for the Redevelopment Lowerarchy of Style City, the last of the freefloating habitats. As a Mindmaster Common, he had nine Prims in his charge; every one of them would have been a capital felon in any other habitat. He met with them in their holding, their section of the maze of pipes and structure that lay between Style City, the core of the habitat, and its outer skin. It made no difference where they met; they were his Recruitment because some form of groupghastliness had forced them to a choice between Redevelopment and having what was left of them stuffed down the flushpipe with the rest of Style City's waste. It was a simple choice, Recruitment or oblivion, one a Prim might be expected to make and stick to.

Most chose Recruitment over oblivion; for the majority, it made no difference. For the survivors, it meant a chance to join the Lowerarchy and perhaps even rise to the Hierarchy. It was unlikely, but some had been known to go as high as Class Two. For them all, though, it was entertainment, a chance to hang a Mindmaster's ears on their belt.

To T-Char, they were just the latest in a long line of Primitive Aggressives that had

Illustration by Mark Maxwell

encouraged him to develop an almost clairvoyant awareness of what was above and below him, in front and behind. Strongar was only the hungriest of them. T-Char called him "Butnot." It came from their first clash, the first day T-Char had ducked into the low arched entry of their holding. Strongar had jumped him from the thin ledge above the door, screaming "Strongar!" as he fell.

It was a thin ledge, hardly wide enough for a pair of toes, above suspicion. But T-Char's beard had gone gray and his head bald passing under similar arches, and he took a halfslider backwards and let the Prim fall directly in front of him. Strongar landed on his feet, but he was facing the wrong way and T-Char fourknuckled him in the back of the head and put him on his face. "But not smarter," was all he said.

It had become a more or less personal struggle since then, as unvarying in its dialogue as a running private joke. Every time the Prim tried to kill him, growling or screaming "Strongar," the Mindmaster would correct him with a stiffkick or a fourknuckle or a palmbutt, and say quietly "But not smarter." Sometimes, if it were an especially good attempt, or one that he had made look particularly feeble, he would say the whole punchline: "Strongar, but not smarter."

Invariably, the other Prims howled with glee and swung down to the floor from the pipes, or jumped up on the big flowline and crouched there, chattering like rats. But they were always quiet by the time Strongar got his head clear and started looking for somebody to pounce on for laughing at him.

T-Char used the confrontations to teach them all the first lesson in the mentality the Upworld had sent him to teach. "You screw, you due," he told them in Gruntish. In the Upworld, T-Char would have said, "A man is responsible for his actions. Failure has its price." But he went irregularly above street level anymore. There was something that grated on him about the condescension of the Class Ones who congratulated him on his "Great Service" in the Underpinning.

Even in the slickyclutching, some bounciful empty-head was bound to ask him if he didn't feel wonderful when he Redeveloped one of his Primitive Aggressives into a Functional Citizen. Even Class Two women, lying rosy and short of breath, were as likely as not to ask him if he didn't get a glow of satisfaction when one of his Prims turned up Honors on the Deadroll from some planetary war or finally made Stimulator on some local world.

He went Upworld just often enough to keep the Headholder from pulling his Master's for excessive association with his charges, but it always left a bad taste in his mouth when the Smoothers were off and he could recall the squeezetalk he'd put up with smiling, just to get some Glaze & Relief. Sometimes he wondered if maybe they ought to pull his Social Identification and reassign him. Sometimes, he thought maybe he was getting just a little too much like the Prims he bent into social shape for the Upworld. Excessive association was an occupational hazard.

He wouldn't be the first Mindmaster to have the seaminess of the Underpinning seep into his brain and

drive him Primitive. It always gave him a shiver to think of turning Renegade, popping into the Upworld for a little Bloodnastiness and then disappearing back into the Underpinning again like the Primitives he was supposed to Redevelop. But whenever it crossed his mind, he brushed it aside with the assurance that the Headholder would pull him up before things got that bad. He was too good at what he did for them to take the chance of having him go Renegade on them. It would take every Stimulator in the Lowerarchy to catch him once he went bad, and even then the only chance they would have would be to send his own Prims into the Underpinning after him.

It took a lot of hard people to keep Style City running smoothly and to see to it that everybody stayed in their place, and many of the Prims he'd Redeveloped had joined the ranks of Enforcement and risen from Rank to Stimulator to Interrogator. It took Redeveloped Prims to protect everybody else from the Primitive Aggressives who popped out of the Underpinning without warning for some Punch & Grab or a bit of Bloodnastiness.

Only a former Prim could go into the Underpinning and expect to come out again. All Mindmasters were Redeveloped Primitive Aggressives who had made a remarkable second level adjustment. Some even functioned on the same levels of rationality as the Class Ones. They were Lowerarchy heroes, but T-Char thought of it only as being a mutant, a thinking Prim, too smart to live in the Underpinning, too different to fit in anywhere else. Sometimes he wondered what he was protecting and why. There was no protection for anyone from the Class Ones. They did as they pleased; the rest got out of their way or cleaned up after them. It had always bothered him that things were the way they were, but lately it had begun to prey on his mind, to distract him.

He was distracted when he came into the holding that day, and four months was plenty of time to build up recognizable patterns, unconscious bad habits that could be fatal. Still, there was no excuse. Most of the Prims were leaning or lounging against the wrappipe that ran along the back wall of the holding. Normally, he did not have to look at the crosspipes that carried effluent from the Upworld to reprocessing centers in the Underpinning. They were too far away for a decent leap, and only a rank amateur would have tried to attack from there. So he didn't look, and pain cracked down on the side of his skull like Breakage & Havoc.

Everything after that was rage and reflex and only a clever scuttle back under the crosspipes saved Strongar from flushing. When the red splotches of pain went out from in front of his eyes and settled in a dazzling scarlet indentation on the side of his head, he thought he could hear a whimper, but he was not sure. He hadn't been hit with a Flexible Threefoot since he was in training, and he had forgotten what the flailing swingstick of the Intimidators felt like.

He forced himself to walk steadily over to the arch-wall and wondered if he was going to have to have the bone replated again. He shook his head at his carelessness, but it was its own punishment, as he had warned

them all so many times. He did not dignify the wound by reaching up to touch it, but he knew he owed Strongar some commendation. He leaned against the wall in half-crouch, half-coil while the Prims^s at the back of the holding pressed forward. It was half likely that they just wanted to get a sniff at the blood, but they were moving in shifting blurs that might have been an attack. They were entitled.

Every Mindmaster who went into the Underpinning took the chance that his charges would mutiny one day and render him for flushing if he lost his footing with them. And Strongar's attack, even though T-Char's retaliation had been swift and total, had been successful. He could feel the side of his head pumping, and he tried to clear his eyes.^s Most of the Prims were eyeing him cautiously, trying to see if he was really hurt or just sucker-ing them into a commitment they would regret.

The irregular gasps that came from under the crosspipes as Strongar fought for breath made them cautious, but if he had succeeded in damaging the Mindmaster, then the Mindmaster was free game. Still, he had seen T-Char react, and none of them wanted to go squealysquealy under the crosspipes with Strongar. It left them in a brief hesitation, and he knew that if he let them go much longer without control they might be lost for good.

"Be wallbacked!" he said. His voice was low and stern, as if he was merely calling for order rather than commanding a withdrawal of potential attackers. Two of the older Prims shuffled restlessly just outside his defensive perimeter, but the rest scattered even before he moved a hand. The other two dove for their places on the flushpipe directly across from him when he moved. T-Char smiled bitterly. He'd been sent there to teach them a fear of authority, and he had apparently succeeded.

He shook a Prepack out of his sleeve and clapped it on the wound. The Numbs went right to work, and the Closers made a net between one side of the opening and the other and then filled it in until it was a sheet of tissue as resilient as skin. Any deep injury would have to wait; if he left immediately, he would have to main half his Recruitment when he tried to come back. There was nothing to do except go on as if nothing was wrong with him.

The first thing to do was deal with Strongar; he went back over to the crosspipe. "YOU! Butno! Crawl out!" But the only answer was tiny gasps for air. "YOU! Crawl out!" he demanded. "You whimperish lielow! Crawl out and stand uplike!" There was a vague scratching like someone trying to master enormous pain and crawl. If it was a lure, it was a good one, and T-Char was tempted to lie down and go in after him.

But there was no doing that. He would have to lie on his stomach even to see under the crosspipe, and some zealous Prim was bound to come down heels first onto his spine, or try to. He'd had them long enough to earn their respect, but they were far from trained, and a Mindmaster's ears were worth a lot of risk. The throbbing dizziness that kept seeping from under the Numbs like oozing blood wouldn't let him take that chance.

There was a possibility that Strongar *couldn't* crawl

out; T-Char's counterblows were all struck in the darkness of pain, and he was not sure how much he'd held back. But there was no way to go under and check. He could only demand. "Crawl out, Butno! No lowlying! You screw, you due; come out and be Thumped."

He expected immediate obedience. It was the second lesson he had been sent to teach. Voluntary obedience to authority, and submission to due punishment—if he got that alone across, his job would have been considered successful. That he was able to take so many beyond that point to actual Redevelopment and even Social Responsibility was to his great credit, but T-Char considered it more to his credit that he had never lost one who was worth anything. It bothered him that Strongar did not crawl out. He waited impatiently, almost anxiously. There was still some scraping under the pipes and a muffled whimper like internal screams leaking outward through cracks in a great resolution.

It seemed to go on forever, and he wondered how long he could wait before it was too late to do anything. He reassured himself that Prims were strong-headed and steel-boned all through, but it gave him no solace. His reflexes were cued to deadly force, and he had not been in control to soften them. There was a good chance the Prim would die under there like a rat that couldn't be gotten out with a long stick.

The rest of the Prims were shifting restlessly, and he knew he could not let them go unattended for long. Finally, he turned from the crosspipes and addressed the loungers along the wall. "Pridey? What's from this?"

He jerked his head toward the archway as if the attack were still going on. The Prim lowered his eyes and struggled to find some meaning in it he could get into words. Strongar was quick and bright; he had the potential for articulation. Most of the others did not, except Crawling, the youngest.

T-Char glanced around for him and found him perched on top of the flowpipe with his head almost touching the plasteel skin of the habitat.

"You screw, you due?" Pridey answered finally. T-Char let it pass. If T-Char pressed the Prim, he might find out he meant that T-Char was due his Bloody for not looking sideways, but he let it go without comment, and Pridey slumped back into himself, content that there were no blows coming and no ridicule. T-Char looked sideways at the crosspipes. He could see fingers just in the shade of the pipes, digging in to pull Strongar forward, and he relaxed a little. Once Strongar crawled out, he could smack him sleepy and put things in his body back in place. Half the training of a Mindmaster was manipulations to undo the damage just inflicted.

He turned his attention to the flowpipe again. "Crawling, what does from this?" The youngest bounced once or twice in his crouch, making dust break free and fall from the insulation of the flowpipe. He seemed to consider it the way T-Char would, measuring all its angles before he made a decision. His eyes were bright with insight. "Strongar's arm longer, T-Char's wind shorter."

T-Char smiled. Crawling didn't have the size to make Intimidator, but he might leap right over that to Inter-

rogator. That was a Class Two position; not many of them ever made Class Two, but there was an ambiguity to the answer a Class Two would have left. It could have meant that either T-Char would be dead, with his breath shortened to nothing, or it might have been a comment that he would not have had to talk so much if Strongar hadn't missed his opportunity by centimeters.

It was the perfect answer for a Class Two: ambiguous, witty, and to the point. T-Char nodded. The motion seemed to separate the edges of his wound and crank the rest of his skin up over his head. He looked toward the crosspipe; a full arm was out, and he could see Strongar's eyes dimly just under the shadow of the pipes. He was surprised at how much relief he felt.

He was in no professional jeopardy. If he lost a Prim, the Lowerarchy had no complaints. Those he couldn't make into Functionals would be flushed anyway, and they knew it. The first time they were caught in the Upworld, they got the choice; the second time, they were flushed. No trial. No appeal. No wastage. No trace. Any of them who didn't make it through Redevelopment were dead meat. That was not what was bothering him; he had plans for Strongar.

Strongar had the drive and a little flash that could have amounted to something on some frontier world, less strict and less sophisticated. Minimum, he expected, was a hero's funeral, maybe even Strongar's picture in the spinning Roll of Heroes in the middle of Style City. But that was not what he had wanted.

He had been Honorable at too many ceremonies for dead heroes not to want to see them come back. And Strongar had had the best chance of any of them.

He pushed his mind away from such maudlinity. Undoubtedly he was getting too old for Redevelopment. Such attachments were dangerous, sometimes fatal. They made for weaknesses. He took his eyes off Crawling's suppressed laughter and swung it to Dimmer.

Dimmer was more likely to be a flusher than anything else. Even Redevelopment under T-Char was not infallible. He had thought more than once about what would have to be done with Dimmer to keep him from disaster, but every time, he came to the conclusion that there was little or nothing. Certainly, the threat of a stiff kick kept him in line while T-Char might be around, but T-Char went Upworld sometimes, and sooner or later while he was gone, some Intimidator was going to catch Dimmer bloodyfingering in the debris of some Class One's erotic fantasy and flush him.

Sometimes, he wondered why the damned Ones always had to have a Prim to play with. Left to their own devices, even a ratlow like Dimmer would not choose higher than a Two and suffer no worse than Bruising & Bending if some irate co-partner came home early and found him still glazed and steamy in his slickysack. He brushed the resentment away. It was wrong to feel it and more wrong to give it headroom. He ought to turn himself in to the Headholder. But he knew he wouldn't. Not until it was too late and he did something dreadful among the primey Ones.

He kept watching for Strongar to come out from the

corner of his eye. No doubt, a few manipulations and a little Stinger, and the Prim would be up as rasty as ever.

Dimmer was still struggling for words and ideas to put into them. It was long past time when T-Char should have launched into some tirade about the stupidity of Prims and stiffkicking some intelligence into them, but everything seemed to be floating away from him. It occurred to him that the cleft in his head was deeper than he thought and that maybe some Numbs had seeped into his graymatter itself. But that was dangerous thinking. A wound was only as deep as you made it. It was a truism he had been teaching Prims for years. He turned his mind away from such self-defeat.

His Prims were looking at him as if he'd been silent far too long, and he tried to think what he'd been asking. It didn't matter; Dimmer never got the point anyway. "Flush," was all he said. It was all he ever said to Dimmer. It was both an insult and a prophecy of doom. Even Dimmer accepted it deep in the piping of his head. Sooner or later, later or sooner, he was dead meat waiting for a blow to knock him over and strong hands to wrench him in pieces and stuff him down the flushpipe. And even Dimmer knew nobody would know or care he was gone. The slickysqueeze he used to fondle would go prancing back up to the glass crossrides between the towers of Style City without a backwards thought. Dimmer looked down at his belt, at his motley collection of ears.

T-Char turned his head away slowly; it hurt anyway, and the motion only seemed to leach the Numbs deeper into his braincase. He took a quick step to the pipes and stepped on Strongar's hand. There was no response, but it could be a clever fake. He leaned his back against the crosspipe and reached under.

Strongar's hair was sticky in his hand, and he jerked the body out like a man opening a drawer from the side. He knew it was bound for the flushpipe even before he turned it over. The eyes were starey-starey, open to something beyond the low ceiling of piping, beyond even the Upworld. But he had no idea what. He wasn't even sure there *could* be anything. Everything ran for the benefit of the Upworld. How could there be anything beyond it?

T-Char looked at the Prims. "No leap without its landing," he said. It was true of himself as well, and he knew it. He was getting old and full of mistakes. He even made the mistake of looking into Strongar's eyes. It was bad luck, very bad. He kicked the lid off the flushpipe and began breaking the joints to make the body fit. The exertion made him dizzier and he started to fall forward. He thought he caught himself, but he was wrong.

He was only barely aware of the consequences. He could hear the flow rushing through the flushpipes lower down; everything emptied into something lower, everything drained inward. He barely felt the blows. He shouldn't have felt *any*. The first should have finished him, and at least Crawling should have done it right. It was just as well, he decided. He was too old for it all anyway. They started to break him for flushing even before he was starey-starey, but that didn't matter either. He wondered whose belt his ears would hang from. He hoped it wouldn't be Dimmer's. ♦

The Winters of the World

Stephen L. Gillett

North America and northern Europe buried under ice sheets kilometers thick . . .

The Mississippi swollen to a mega-Amazon, draining a continent's worth of meltwater . . .

Vast meltwater lakes like inland seas, flanking the great icecaps like frigid gems . . .

As all AMAZING® Stories readers know, ice has chugged down from the poles several times in the recent geologic past, during the Pleistocene epoch, when our ancestors chased the mammoths and aurochs through northern Eurasia and North America.

The cause of the ice sheets' waxing and waning has been more problematic, though, and has inspired speculation and controversy since the Ice Ages' reality was established by geologists in the late 19th century. Did the Sun sputter and the Earth cool? Or did climate change for some unknown, but Earth-based, reason? Or even more glamorously (and speculatively): maybe the whole Earth tipped abruptly on its axis?

Well, we're still not completely sure, but it looks as though small periodic variations in the Earth's orbit—the "Milankovich variations"—are the explanation. Milankovich, a Yugoslav astronomer, showed that these variations cause small but consistent changes in the average amount of sunlight ("insolation") that high latitudes receive.

What are these variations? A couple come from the precession of the equinoxes, the slow change in the

direction that the Earth's axis tilts.

"Precession" is a rotation of the axis of something that's spinning around, just like a wobbling top that's about to fall over. Over about 25,000 years, the Earth's axis makes one such complete wobble, and climatic periods of about 19 and 23 thousand years are associated with this precession. (They're not exactly 25,000 years because of the way the precession period combines with other periods.)

Another cycle is in the very tilt of Earth's axis—its "obliquity," which varies from about 22 to 25 degrees over about 41,000 years. (It's now 23.5 degrees.) Finally, the eccentricity of the Earth's orbit (how much it differs from a circle) changes slightly, with a period of around 100,000 years.

Now, these variations are only roughly cyclic. They result from the sum of lots and lots of different astronomical periods, from the gravitational tugs of all the other planets on the Earth. So, the variations themselves vary in period as you get too far away from the present, say more than a million years or so.

The Milankovich variations were ignored for decades because they seemed too small to make any difference in climate. At their most extreme they cause a change of a few percent in the intensity of sunlight. But as geologists and oceanographers got better and better dates on the glacial periods, and the times of high sea level during the interglacials, they found that these dates

fitted very well with the Milankovich cycles.

Climate is so finely balanced right now that even changes of a few percent in insolation have large effects. How can this happen?

Through positive feedbacks. For one example, what you need to start a glacial age is not frigid winters but lots of snow. And also cool summers, so the snow won't melt. You need to accumulate snow to make ice, and to do that you need to preserve it over the summer. Once that happens, a positive feedback sets in: snow is white and thus reflects sunlight, which tends to cool things yet more, so more snow accumulates. . . .

Before long you've covered most of a continent with ice.

During an interglacial stage, on the other hand, the ice retreats to its fortresses in Greenland and Antarctica. Once climate kicks over into an interglacial, some sort of feedback must exist to accelerate the melting, but the mechanism is still debated. Of course, we're in an interglacial right now, but in 5,000 years or so it will get colder again; and after a warmer respite in about 15,000 years, the glaciers will return in earnest in 60,000 years or so. (Poul Anderson wrote a book set during the next glaciation, *The Winter of the World*, from which I took—with his permission—the title of this column.)

Lots of things are different during a glacial stage. It's easy to see why vast lakes formed along the edge of the ice sheets, from the melting wa-

ter. For a time, for example, glacial Lake Agassiz covered much of interior North America, spilling off to the south through the Mississippi Valley. It was finally drained by the glaciers' retreat, which opened a new northeasterly path out the valley of the St. Lawrence.

In the northwestern U.S., one such meltwater lake, glacial Lake Missoula, yielded the largest floods ever documented. Lake Missoula, named for a town in western Montana where the lake stood almost 1,000 feet deep, was bounded to the north by the main ice sheet and stretched for tens of miles southeasterly through the valleys of western Montana. To the west, it was dammed by a tongue of the main ice sheet, which poked down to choke off the natural drainage along the Pend Oreille (pond oh-ray) valley in the Idaho panhandle.

Now, ice is a *terrible* material for a dam: it floats! So as Lake Missoula filled with meltwater, every century or so, its ice dam would start to float, and would then fail catastrophically. Cubic miles of water then spilled into the Columbia River drainage, sloshing over western Washington state with results like taking a firehose to a sand castle. The depth of water, and its velocity, made unique land forms: giant ripple marks, for example, which in aerial photos look like those on the bottom of a brook—until you realize the scale of the marks by comparing them with the highways crossing them. Each ripple is over 20 feet high and hundreds of feet long. The floods scoured out giant channels ("coulees") in a matter of hours, and flushed away topsoil down to bedrock, leaving a "scabland" of plucked and barren rock. (To this day, the main channels followed by the floodwaters are prominent in orbital photos.) Vast ponds—lakes, really—temporarily formed at bottlenecks, and sediment laid down by these lakes extends hundreds of kilometers up side streams, such as the Willamette (wil-lam-met) River in Oregon.

These were the Spokane floods, named from the city of Spokane (spo-kan), Washington, whose modern site lay in their path. Geologists

have adopted a marvelous Icelandic word, *jökullhlaup* (very approximately, *yeh-kul-hloip*), for a flood released by the periodic failure of a glacial ice dam. Similar floods occur today in Iceland on a much smaller scale. The Spokane floods are the largest *jökullhlaups* known. About 40 separate floods happened: after Lake Missoula drained in a matter of days, the tongue pushing down from the main glacier to the north would reestablish the ice dam, and the cycle would repeat.

Quite apart from such spectacular but rare effects, glaciation deranges the topography, because moving ice doesn't shape the land like moving water does. Glaciers leave behind closed basins, as they scoop out softer places in the rock. These fill up and become lakes after the ice is gone. The "10,000 lakes" in Minnesota, not to mention the zillions of lakes and bogs to the north in Canada, and the Finger Lakes in New York, are one result. Glaciers also leave behind piles of dirt ("moraines") bulldozed before them. (Long Island is one.) These consist of completely unsorted debris, boulders and sand and silt mixed haphazardly together. Running water, by contrast, sorts material efficiently; it moves silt and sand much more easily than boulders!

During the glacial maxima the climate also became cooler farther south, and rainfall patterns changed greatly. In the Great Basin of the mountain West, for example, two vast lakes, Lake Bonneville and Lake Lahontan, covered most of western Utah and western Nevada, respectively. Many smaller lakes also filled valleys between these major lakes.

This was the so-called "pluvial" (from the Latin word for rain) period, which corresponded closely with the time of the great glaciers to the north. Great Salt Lake in Utah is a shrunken relic of Lake Bonneville, and several smaller lakes in Nevada (such as Walker and Pyramid), perched improbably way out in the desert, are all that's left of Lake Lahontan. Not too far from where I live is the "40 mile desert," a sere, waterless stretch—bleak even to a desert rat like me—where California-bound wagon trains staggered along

in the last century. Ironically, most of this route lay under Lake Lahontan 15,000 years ago: ancient shorelines left by the lake now stripe the desert hills with parallel lines like ruled paper, hundreds of feet above the dry valley floor.

Cooler climate seems reasonable during an ice age—after all, the northern part of the continent was covered with *ice*—but there's actually a more subtle cause for the enhanced rainfall: the high, cold plateau of ice in the north forced the jet streams southward. As you all know from the evening weather report, the jet streams tend to bring storms along, so all the Pacific storms that now flow into the Pacific Northwest and British Columbia went toward Nevada instead. Much of the moisture was wrung from them by the Sierra Nevada, and north-south mountain ranges to the east snagged more rainfall. Runoff from the mountains then filled the lake basins.

The climate, it turns out, was not all *that* much cooler. The vegetation during the pluvial periods was pretty much the same as you find in the Great Basin today. Sagebrush ringed Lake Lahontan, as it does its basin today. The main effect creating the gigantic lakes was the increased rainfall in the mountains.

By the way, the Pluvial Age Great Basin, with its vast lakes and intricate shorelines, would be a good setting for an SF story. It's every bit as exotic as the dry Mediterranean, an SF standby, and it's much better documented.

The waxing and waning of glacial ice also causes sea level to vary over hundreds of meters, as massive amounts of water are locked into ice and then released again. Obviously this changes the shape of the continents. But there's a more subtle result: the intricate, convoluted shorelines we take as "normal" on the modern coastline. Look at the eastern seaboard of the U.S., for example, with its innumerable estuaries, offshore islands, bars, and spits. They resulted from the rise in sea level 10,000 years ago when the glaciers melted. River mouths were drowned, and longshore currents began to build bars and spits across

the inlets. Over time, the shoreline will smooth out, as the rivers fill in the estuaries from behind and the bars wall them off from the sea. (Estuaries, of course, are highly productive ecosystems, but Mother Nature destroys wetlands too! She just takes a bit longer.)

The weight of all that ice also slowly pushes down the crust. Hudson Bay in North America, and the Baltic Sea in northern Europe, are shallow depressions left behind from the weight of the ice. Now that the ice is gone, the land is slowly rising, like a thumbprint in warm wax. Hudson Bay is ringed by old shorelines, left behind as the land rises again. Similarly, in the Baltic, some sea-mounts have become islands in living memory. But it's only been 10,000 years or so since the ice melted, and both depressions have lots of rising still to do.

This leisurely pop-back of the crust is called "isostatic rebound." Geophysicists use the rate of rebound to estimate how viscous the Earth's crust and mantle are, which are useful data for calculating things like how fast continental drift can take place.

The depression of the crust by a continental ice sheet would be a problem, by the way, if you were to melt off the Greenland and Antarctic icecaps to try to get new land. Not only would the meltwater flood low-lying parts of the continents elsewhere, but great tracts of the crust in Greenland and Antarctica have been pushed below sea level by the weight of the ice. You'll have to wait a hundred thousand years or so for Antarctica and Greenland to pop back above sea level.

The Milankovich variations are not the whole story, not by a long shot. In a very real sense we're *still* in an ice age, right now, because there are polar icecaps. All that happens during the Milankovich glacial maxima is that the caps get bigger. But during most of geologic history, there have been no polar icecaps at all.

So what's happened? Is the Earth cooling off? Can we look forward to nothing but grimmer and grimmer winters in the geologic ages to come?

Hardly. Note I said "most," not "all." Ice has invaded from the poles at other times in Earth's past, too. The earliest glaciation we have fragmentary evidence for in the geologic record happened about 2.5 billion years ago. There also was extensive glaciation in the late Precambrian, around 700-800 million years ago. Northern Africa, site of the present Sahara Desert, hosted a continental glaciation during the Ordovician period, about 400 million years ago. Records of a late Paleozoic glaciation, about 200 million years ago, are found on the fragments—South America, Africa, India, Australia, Antarctica—of the ancient supercontinent of Gondwanaland, which began to splinter about 120 million years ago. The Pleistocene-Present is only the most recent glacial age.

What makes such glacial ages? Now that we know about continental drift, we can understand them in general: if the continents are so arranged that surface seawater can circulate freely between the equator and the poles, climate will be more equable over the globe and polar ice won't exist. For example, the Antarctic glaciation seems to have started—suddenly, as geologic events go—in the Miocene, about 25 million years ago. Continental drift had separated Australia and Antarctica, and as Antarctica slid inexorably toward the pole, the island continent was finally isolated by breaching of an island bridge to South America. This let the circum-Antarctic current become established, so that the cold surface water could stay in the Antarctic and stay cold. (Before, the currents were pushed northward by collision with the island bridge, so they mixed with warmer water.) Then, once the glaciers started forming, the feedback started in earnest, and Antarctica was ice-covered before long.

By contrast, when wide shallow seas covered much of the Earth, as during the Cretaceous period, about 80 million years ago, or when the continents were distributed along the equator, as in the Cambrian period, about 550 million years ago, the surface water could circulate freely and thus was warm clear to the poles.

An age with icecaps, like the present, also has profound effects on the rest of the Earth; effects that go beyond the climate.

One such is on the deep circulation of the oceans; not just the surface circulation we've been talking about, but the interchange between deep and shallow water. When icecaps exist, cold polar water drives this circulation. It sinks and flows toward the equator; in return, warm surface water flows toward the poles. Thus, except for a thin surface layer in the tropics, the modern ocean is cold clear through. It is also oxygenated clear through, because cold water can hold lots more air in solution than warm water.

But what happens when there's no cold water to sink? The warm equatorial surface water sinks instead. Sure, being warm, it tends to expand and thus decrease its density; but it has also lost water to the air from evaporation. That leaves salts behind, which makes the surface seawater a bit more saline; and the extra salinity is what makes it sink. We have a modern analog of this situation: the Mediterranean. The Med doesn't receive enough water from the rivers draining into it to replenish evaporation, so its surface waters get saline enough to sink, and a warm saline current flows at depth out the Strait of Gibraltar.

Such "warm saline bottom water" also is anoxic, since warm water holds little air in solution. No higher life forms can live in such an ocean; only anaerobic microbes exist, and lots of organic matter accumulates in the sediment—a big difference from the modern seas! The black shales so abundant in parts of the geologic record result from such organic-rich deposition. A modern, small-scale model of such an ocean is the Black Sea. The Bosphorus is much too shallow to allow deep circulation with the Med, and obviously the Black Sea receives no cold polar water to drive its circulation. So below a thin surface layer with a normal marine fauna, the Black Sea is anoxic.

Earlier I talked about the derangement of topography that glaciers cause. Even more: they're massive erosion machines. A continental

glacier is a continental bulldozer, scraping off gigatons of rock. The great "shield" areas of the continents, where all younger rock has been eroded off to show ancient, contorted igneous and metamorphic rocks, are probably created by glaciations. The outlines of the Canadian Shield in North America and the Fennoscandian Shield of northern Europe both correspond well with the positions of the ice sheets.

An even more bizarre possibility is suggested by some fragmentary data that indicate the late Precambrian glaciation extended into very low latitudes. The obvious inference is that the globe was almost covered with ice, so that glaciers went almost to the equator. But there's another possibility: if the tilt of the Earth's axis were much greater, the equator might be a better place to grow glaciers than the poles. Sure, each year the poles would get six months of intense winter, but that would be followed by six months of intense summer—making it hard to preserve the snow. By contrast, the equator stays much cooler year round. However, we don't know yet whether the late Precambrian glaciation was just confined to the equator, so we don't yet know which possibility is correct.

If the Earth were completely covered with ice—and no other effects intervened—the ice wouldn't melt, because the Earth's reflectivity ("albedo") is then so high. Climatologists used to worry about "runaway glaciation," when the Earth would freeze over permanently. It now looks as though the freeze-over would not be permanent because other effects would intervene. With no oceans, carbon dioxide from volcanic activity would accumulate in the air, increasing the greenhouse effect until the ice melted again. A "greenhouse effect," of course, is the trapping of solar heat through absorption by certain molecules in the atmosphere.

Glaciers in the Sahara; deep lakes covering most of Nevada; a clement Antarctica and an anoxic ocean; these show strikingly the variety and yet the unity of an entire world. At such times in its past, our own Earth has been a good deal less Earthlike than many others' "alien" planets! ♦

About the Authors

In addition to being the co-authors of this issue's leadoff story, **Michael Swanwick** and **Tim Sullivan** have at least one other significant accomplishment in common: Their first published stories appeared in the *New Dimensions* anthology series a little more than a decade ago. The story here, "Fantasies," represents a new dimension in fiction for this magazine . . . which, all things considered, is rather fitting.

Michael's latest novel is *Stations of the Tide*, which was reviewed in our May issue; a collection of his shorter work, *Gravity's Angels*, will be out by the time you read this. Tim's most recent book is *The Martian Viking*; he has edited one anthology of horror fiction and is working on a second one, entitled *Cold Shocks*.

AMAZING® Stories got the career of **R. Garcia y Robertson** off to a flying start when "The Flying Mountain" appeared in May 1987. "Plague Ship" is his sixth story for this magazine, which makes him the "veteran" on this issue's roster of writers. His first novel, *The Spiral Dance*, is due out in October.

Among **Rob Chilson's** many published works is one earlier appearance in this magazine—"Primitives," a collaboration with Robin Bailey that appeared in July 1987. "I hasten to add," Rob hastens to add, "that it was Robin's original story and he deserves most of the credit." Okay, Rob . . . but the credit for "Logos" belongs entirely to you.

Depending on how you look at it, **George Zebrowski** is either tied with R. Garcia y Robertson for most previous appearances in this magazine, or else he's a very close second. "The Number of the Sand" is George's fifth story for us but marks the sixth time his name has been on top of a piece of fiction—because an extensive excerpt from his new book, *Stranger Suns*, was serialized in the January 1991 and March 1991 issues.

It wasn't until after we accepted his manuscript for publication that **Gary Herring** told us that "Dad was in NASA during the glory days, and we moved around the South a great deal." In retrospect, that information doesn't really come as a surprise—who else but a "rocket brat" could have written a story like "Fireballing"? It is Gary's third published piece of short fiction, and his first appearance in this magazine.

John Maxstadt has a long list of writing credits, but considers "The Glory of War" his first publication of "official fiction." Most of his earlier work consists of articles and essays on role-playing games that have appeared in DRAGON® Magazine. Several of those pieces were humorous . . . something that this piece of "official fiction" definitely is *not*.

In a career that covers twenty-six years, **William John Watkins** has published just about everything but his grocery list: novels, poems, short stories, and plays. His first science fiction short story appeared in the June 1974 issue of *If*. His most recent, "In the Lowerarchy of the Underpinning," is also his debut in AMAZING Stories.

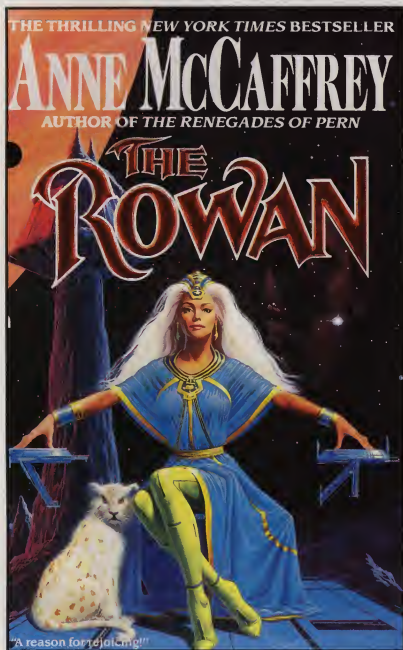
It's tough to figure out what we can say about **Robert Silverberg** that hasn't been said before, but that's a problem we'll cope with anytime as long as he keeps providing us with stories. For those of you who can't get enough of his work, *The Face of the Waters* will be out in November as a hardcover from Bantam Spectra. And for those of you who would rather not wait until November, the back of this magazine contains a novella-length story taken from the early part of the novel. Meet the inhabitants of Sorve Island, get to know them a little . . . and when you're done reading, you'll realize that—just like the characters themselves—you've really only just gotten to the beginning of the story. ♦

Looking Forward:

The Rowan

by Anne McCaffrey

Coming in September 1991 from Ace Books



Cover art by Romas

Introduction by Bill Fawcett

Although she is best known for her Pern series, all of Anne McCaffrey's novels feature fascinating worlds on which live deep, realistic characters. In *The Rowan* we meet one of her most vividly portrayed heroines.

After being orphaned at birth, the Rowan is quickly identified as one of the most powerful psychics on any of the inhabited planets. The story includes a lot of detail about her childhood, which enables the reader to understand and empathize with the Rowan after she attains adulthood and faces a wide range of challenges and dangers.

The following excerpt is taken from the point in the story after the Rowan has assumed her duties. As the Prime for her world, she maintains contact with psychics on other planets. Here, the Rowan is launching a number of interstellar parcels when she first encounters a newcomer to the elite group of psychics.

One of the ground crew toggled the yellow alert across the board, then red as ten tonnes of cargo from Earth settled on the Priority Receiving cradle. The waybill said Deneb VIII, one of the newest colonies, which was at the Rowan's limit. But the shipment was marked TOP EMERGENCY PRIORITY/ABSOLUTELY ESSENTIAL with lavish MED seals and stencils shouting "caution." The waybill described the shipment as antibodies for a virulent plague and specified direct transmission.

Well, where're my coordinates and my placement photo? snapped the Rowan. I can't thrust blind, you know, and we've always re-routed for Deneb VIII.

Bill Powers was scrolling through the Star-dex which the Rowan suddenly tripped into a fast forward, the appropriate fax appearing on all screens at once.

Text of excerpt copyright ©1991 Anne McCaffrey

Glor-ree! Do I have to land all that mass there myself? No, Lamebrain, I'll pick it up at 24.578.82, the lazy rich baritone voice drawled in every mind, that nice little convenient black dwarf midway. You won't need to strain a single neuron in your pretty little skull.

The silence was deafening.

Well, I'll be . . . came from the Rowan.

Of course, you are, sweetheart—just push that nice little package out my way. Or is it too much for you? The drawl was solicitous rather than insulting.

You'll get your package! replied the Rowan, and the dynamos keened piercingly just once as the ten tonnes disappeared out of the cradle.

Why, you little minx . . . slow it down or I'll burn your ears back!

Come out and catch it! The Rowan's laugh broke off in a gasp of surprise, and Ackerman could feel her slamming up her mental shields.

I want that stuff in one piece, not smeared a millimeter thin on the surface, my dear, the voice said sternly. *Okay. I've got it. Thanks! We need this.*

Hey, who the blazes are you? What's your placement?

Deneb VIII, my dear, and a busy boy right now. Ta-ta.

The silence was broken only by the whine of the dynamos dying to an idle burr.

Not a hint of what the Rowan was thinking came through now, but Ackerman could pick up the aura of incredulity, shock, speculation, and satisfaction that pervaded the thoughts of everyone else in the Station. What a stunner for the Rowan! No one except a T-1 could have projected that far. There'd been no mention of a new T-1 being contracted to FT&T, and, as far as Ackerman knew, FT&T had the irreversible first choice on T-1 kinetics.

Another yellow flame came up for the Altair hurdle and the waybill designated LIVE SHIPMENT TO BETELGEUSE. The dynamos whined noisily and then the launcher was empty. Whatever might be going through her mind at the moment, the Rowan was doing her work.

All told, it was an odd day, and Ackerman didn't know whether to be thankful or not that the Rowan wasn't leaking any aggravation. She spun the day's lot in and out with careless ease. By the time Jupiter's bulk had moved around to blanket the out-system traffic, Callisto's day was nearly over and the Rowan wasn't off power as much as decibel one. Once the in-Sun traffic had filled all available cables, Ackerman wound down the system. The computer banks darkened and dynamos fell silent . . . but the Rowan did not come down out of her Tower.

Ray Loftus and Afra, the Capellan T-4, came over to sit on the edge of Ackerman's desk. They brought out the bottle of some home brew and passed it around.

"I was going to ask her Highness to give me a lift home," Loftus said, "but I dunno now. Got a date with—"

He disappeared. A moment later, Ackerman could see him near a personnel carrier. Not only had he been set down gently, but various small necessities, including a flight bag, floated out of nowhere onto a neat pile in the carrier. Ray was given time to settle himself before the hatch sealed and he was whisked off.

Powers joined Afra and Ackerman.

"She's sure in a funny mood," he said.

When the Rowan got peevish, few of the men at the station asked her to transport them to Earth. She was psychologically planetbound, and resented the fact that lesser talents could be moved about through space without suffering a twinge of shock.

Ackerman and Powers exchanged looks which they hastily suppressed as the Rowan appeared before them, smiling. It was the first time that welcome and charming expression had crossed her face for two weeks.

The grin made you realize, Ackerman thought, very very softly in the deepest part of his brain, what a lovely woman she could be. She was slight, thin rather than slender and sometimes moved like an animated stick figure. She was not his notion of "feminine"—all angles and slight breasts—and yet, sometimes when she looked up at you out of the corner of her eyes, that slight smile tugging at the corner of a rather sensual mouth, she fair took a guy's breath away . . . wondering. And thinking about things no married man—or T-9—had any business reviewing, even in his head.

She smiled now, not sly but watchful, and said nothing. She took a pull from the bottle, made a grimace, and handed it back with a thank-you. For all her eccentricities, the Rowan acted with propriety face-to-face.

"Heard any 'scut about our Denebian friend?" she asked with just the right degree of "casual" in her voice.

Ackerman shook his head. "Those planets are three generations colonized, and you came out of Altair in two."

"That could explain it, but FT&T hasn't even projected a station for Deneb. They're still trying to find Talents for closer systems."

"And not for want of trying," Afra said.

"Wild Talent?" Powers helpfully suggested.

"At a Prime level? Unlikely." She shook her head. "All I can get from Center is that they received an urgent message from an inbound merchantman to help combat a planet-wide virus, including a rundown on the syndrome and symptoms. Lab came up with a serum, batched, and packed it. They were assured that there was someone capable of picking it up and taking it the rest of the way past 24.578.82 if a Prime would get it that far. Prior to this morning, what little goes to Deneb has been sent by the cargo drone or rerouted. And that's all anybody knows." Then she added thoughtfully, "Deneb VIII isn't a very big colony."

Oh, we're big enough, sweetheart, interrupted the drawling voice. *Sorry to get you after hours, my dear, but I don't really know anyone else to tag on Earth and I heard you coloring your atmosphere.*

What's wrong? the Rowan asked. *Did you smear your serum after all that proud talk?*

Smear it, hell! I've been drinking it. No, lovey. We've just discovered that we got some ET visitors who think they're exterminators. We got a reading on three UFOs, perched four thousand miles above us. That batch of serum you wafted out to me this morning was for the sixth virus we've been socked with in the last two weeks, so there're no bets on coincidence. Someone's trying to kill us off. You can practically time the onset of a new

nasty by the digital. We've lost twenty-five percent of our population already and this last virus is a beaut. I want two top germdogs out here on the double and say, two naval squadrons. I doubt our friends will hover about viral dusting much longer. They've softened us up plenty. They're moving in now and once they get in position, they'll start blowing holes in us real soon. So send the word along to Fleet Headquarters, will you, sweetheart, to mobilize us a heavy-duty retaliation fleet?

I'll relay, naturally. But why didn't you contact direct? Contact whom? What? I don't know your Terran organization. You're the only one I can hear.

Not for much longer if I know my bosses.

You may know your bosses, but you don't know me. That can always be arranged.

This is no time for flirting. Get that message through for me like a good girl.

Which message?

The one I just gave you.

That old one? They say you can have two germdogs in the morning as soon as we clear Jupiter. But Earth says no squadrons. No armed attack.

You can double-talk, too, huh? You're talented. But the morning does us no good. NOW is when we need them. We've got to have as many healthy bodies as possible. Can't you sling the medics . . . no, you can't, can you, not with Jupiter's mass in the way. Sorry, I just found the data on your station. Filled under Miscellaneous Space Installations. But, look, if six viruses don't constitute armed attack, what does?

Missiles constitute armed attack, the Rowan said primely.

Frankly, missiles would be preferable. Them I can see. I need those germdogs NOW. Can't you turn your sweet little mind to a solution?

As you mentioned, it's after hours.

By the Horsehead, woman! The drawl was replaced by a cutting mental roar. My family, my friends, my planet are dying.

Look, after hours here means we're behind Jupiter. But . . . wait! How deep is your range?

I don't honestly know. And the firm mental tone lost some of its assurance.

"Ackerman!" The Rowan turned to her stationmaster.

"I've been listening."

Hang on, Deneb, I've got an idea. I can deliver your germdogs. Open to me in half an hour.

The Rowan whirled on Ackerman. "I want my shell." Her eyes were flashing and her face was alight. "Afra!"

The station's second in command, the handsome yellow-eyed Capellan T-4, raised himself from the chair in which he'd been quietly watching her.

"Yes, Rowan?"

She glanced to the men in the room, bathing each in the miraculous smile that so disconcerted Ackerman with its sensuality.

"I'll need all of you to help me. I'll have to be launched, slowly, over Jupiter's curve," she said to Afra. Ackerman was already switching on the dynamos, and Bill Powers punched for her special shell to be deposited on the launch rack.

As soon as she saw the capsule settle in the rack, she took another deep breath and disappeared from the Station, to reappear behind the conveyance. She settled gracefully into the shock couch. The moment the lock whistle shut off, she "knew" that Afra was lifting her, gently, gently away from Callisto. Only when the shell had swung into position over Jupiter's great curve did she reply to the priority call coming from Earth Central.

Now what the billy blue blazes are you doing, Rowan? Reidinger's base voice cracked in her skull.

She's doing us a favor, Deneb said, joining them.

Who'n bell are you? demanded Reidinger. Then, in shocked surprise, Deneb: How'd you get out there?

Wishful thinking. Hey, push those germdogs to my pretty friend here, huh?

You're going a little too far, Deneb. You can't burn out my best Prime with an unbiased send like this.

I'll pick up midway. Like the antibiotics this morning.

Deneb, what's this business with antibiotics and germdogs? What're you cooking up out there in that heathenish hole?

Oh, we're merely fighting a few plagues with one hand and keeping three bogey ETs upstairs. Deneb gave them a look with his vision at an enormous hospital, a continuous stream of airborne ambulances coming in; at crowded wards, grim-faced nurses and doctors, and uncomfortably high piles of still, shrouded figures. That melded into a proximity screen showing the array of blips on an orbital hold. We haven't had the time or the technology to run IDs but our Security Chief says they're nothing he's seen before.

Well, I didn't realize. All right, you can have anything you want—within reason. But I want a full report, said Reidinger.

And patrol squadrons?

Reidinger's tone changed to impatience. You've obviously got an exaggerated idea of FT&T's influence. We're mailmen, not military. I've no authority to mobilize patrol squadrons like that! There was a mental snap of fingers.

Would you perhaps drop a little word in the appropriate ear? Those ETs may gobble Deneb tonight and go after Terra tomorrow.

I'm filing a report, of course, but you colonists agreed to the risks when you signed up!

You're all heart, said Deneb.

Reidinger was silent for a moment. Then he said, Germdogs sealed, Rowan. Pick 'em up and throw 'em out, and his touch left them.

Rowan—that's a pretty name, said Deneb.

Thanks, she said absently. She had followed along Reidinger's initial push, and picked up the two personnel carriers as they materialized beside her shell. She pressed into the station dynamos and gathered strength. The generators whined and she pushed out. The carriers disappeared.

They're coming in, Rowan. Thanks a lot.

A passionate and tender kiss was blown to her across the intervening light-years of space. She tried to follow after the carriers and pick up his touch again, but he was no longer receiving. ♦

Looking Forward:

Tatham Mound

by Piers Anthony

Coming in September 1991

from William Morrow & Company

Introduction by Bill Fawcett

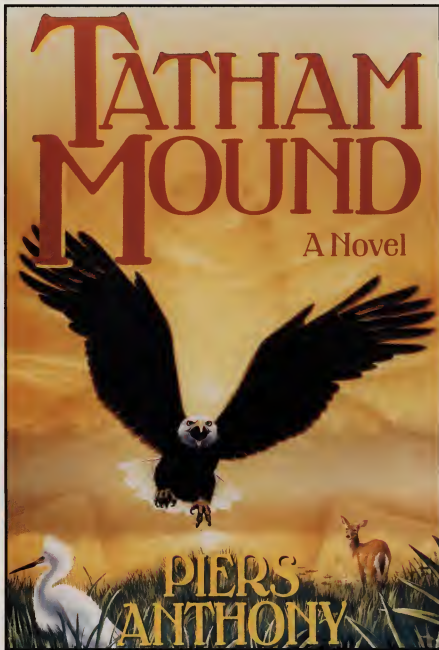
When some people hear that a book is about American Indians and is accurate in detail, they tend to suspect—recalling experiences with grade-school textbooks—that it might be boring or childish. That's definitely not true of *Tatham Mound*. If you've liked Piers Anthony's other books, you'll enjoy this one just as much. The novel is a wonderfully well crafted weave of constant action, spirit magic, and very real characters.

The book depicts the world of the Tocabaga Indians through the eyes of Throat Shot—who was named for an incident that occurred on his manhood raid, when he was still being called Hotfoot. After Hotfoot and his friends carefully plan each step, the raid begins . . . and then things start to go wrong.

Hotfoot lifted the point and loosed his arrow at point-blank range. It happened before he realized it was going to. It was as if his arms and hands belonged to someone else, someone with twice the nerve he could ever have. The arrow passed through the warrior's neck. The man did not cry out; he could not, for it was his voice the arrow had transfixed. He simply collapsed, looking surprised.

"I never saw a neater kill!" Woodpecker breathed, awed. "No sound at all!" He was speaking of animal kills, of course; none of them had seen a warrior die in battle before.

Hotfoot did not answer. He was stunned. He had killed squirrels and rabbits, and was reckoned to have a good arm for the bow. But this was a



Cover art by Jerry Lofaro; cover design by Jesse Cohen

man! He had known this was no game excursion they were on, but still had not until this moment appreciated the full seriousness of it.

"Take his scalp!" Alligator said.

Hotfoot just stared at the dead man, making no move. *The death of a man!*

"We must run," Woodpecker whispered. "They'll find him soon. No time for the scalp."

They moved out, silently, into the closing dusk. But Hotfoot was in a kind of trance, seeing only that warrior, the arrow through his neck, his eyes widening as he sank down. There was no glory in this kill, only horror. Why couldn't he have missed, as Alligator had, or hit the shoulder, as Woodpecker had?

Because the man would have cried out, and attacked them, and then they would have had to try to kill him more messily, and if they had succeeded, by that time the other Cale would have been there, and that would have been all. He had had to do it; he knew that. Yet still he was appalled.

In this numbed time of flight and thought, Hotfoot knew that he was no warrior. Woodpecker had covered for him, giving him a pretext not to take the scalp, though of course he should have. None of them had experience in cutting heads; they would have bungled it, and indeed, they had no time. But it was more than that. Hotfoot knew with absolute certainty that he never wanted to kill again. *That* was why he was no warrior.

They gained distance, because the Cale did not at first discover the death of their warrior. They assumed that no outcry meant no discovery, so the rest were still searching their own sections of the closing net. That was good fortune for the raiders, for every moment that passed now made escape more likely.

Now they heard the outcry behind as the Cale discovered the slain warrior. But the night was near; as long as they kept quiet, they were safe.

The problem was that the same factors that inhibited the pursuit also inhibited the three of them. They could no longer see the signs they had left, or judge the lay of the land they had noted. What had been reasonably familiar was now unfamiliar. Also, the creatures of the night were emerging, including mosquitoes. The biting blackflies of day could be squeezed off when they alighted; they tended to come in swarms, and lost interest when motion stopped. But mosquitoes were inexorable, and invisible in the dark. The three of them had put on no fish oil to repel these, because its odor would give away their location.

They kept moving, regardless. Their progress became noisier as they made missteps, and they blundered into brush and muck, surely leaving a trail that would be obvious by daylight. But they knew that the pursuers would make similar noise, unless they used familiar paths.

"Let's use the paths!" Hotfoot urged. "We can move faster and quieter, and that is less risk than this."

Woodpecker considered a moment, then agreed. They cut across to the nearest path, paused to listen for pursuit, then got on it. They were alone; either the Cale had given up the pursuit, or they were not in this vicinity.

This helped greatly. They proceeded at almost daytime velocity, for there was no danger of going astray here.

They reached the river. Now they had to cut through the brush again, for their canoe was hidden well away from the regular path. There were brambles and dense thickets, and the ground was marshy. They feared for snakes and alligators. But they were getting close to their canoe, and once they recovered that, they would have an easy time getting the rest of the way back.

But they couldn't find it in the dark. They ranged back and forth along the slushy bank, searching for the particular palmetto thicket they had used, but they had hidden the canoe too well. In the night they were baffled.

Finally they consulted, and decided to wait for dawn, when they should be able to spot it readily. They took turns sitting guard, one always alert while two slept.

Now Hotfoot became thoroughly aware of the incidental injuries he had taken: the scratches that were not of the ritual preparation, the insect bites, the bruises from stumbling in the darkness. He was also hungry, for he had not eaten in a day and two nights, and tired, for he had not rested in that time either. The excitement that had sustained him on the mission was now exhausted. He was not sleepy, just phenomenally weary.

But the worst thing was the image of the slain warrior, the arrow through his neck. That man's spirit was surely orienting on Hotfoot now, seeking retribution. The living men could be avoided, if one was clever enough, but not the spirits of the dead. The spirits could only be diverted by the intercession of a priest—but until Hotfoot got home, the priest could not intercede. He was vulnerable now. The horror of his action rose like a dark mass before him, seeming to take animate form, and he was afraid. Afraid because of his coming shame. Because he was no true warrior, having no joy of killing. Too late, he had learned that he was a coward.

But the spirit did not attack immediately. At least, not tangibly. That was not the way of spirits, though. They did not make physical mischief, they acted more subtly. They seeped into the body of the offender, entering through his nostrils, his mouth, his anus, and spreading out within, taking time to choose their targets. Often it was the joints, which slowly coalesced, so that they operated only with decreasing range and increasing pain, making a cripple of a man without leaving a mark on him. Sometimes it was more subtle yet, so that he sickened and died, and no priest could cure him. Hotfoot knew that he was not free; he was now an easy target for the spirit's wrath.

Dawn came, and he gazed about, for his watch had been last. Now the locale became increasingly familiar; they were not far at all from the place they sought. Had the night not changed things so much, they should readily have found their canoe.

The others stirred. Silently, Hotfoot indicated the direction, and they nodded.

They moved to it, and it was there, exactly as they had left it. Their hiding place had been secure—almost too secure. Next time, they would be sure to memorize

the position in such a way that they could find it by night as well as by day!

They launched the canoe and climbed carefully into it. Alligator took the rear paddle this time, and Hotfoot the lead, while Woodpecker knelt in the center, as before. They glided into the center, and beyond, seeking the familiar channel that lacked the main current. The Little Big River was gentle, easy to ride, but still it was pointless to oppose the current unnecessarily.

The river narrowed—and disaster struck. Abruptly a canoe shot out from the bank ahead, to intercept them. It carried six Cale warriors. The Cale had been watching the river—as the three of them should have anticipated.

Immediately Hotfoot and Alligator spun the canoe about, heading downstream. But the Cale craft followed, and it had four paddlers. It was overhauling them rapidly.

"Shore!" Woodpecker snapped. Indeed, they were already turning to get to it.

They cut close to the dense foliage of the bank, heedless of whatever landing they might make. On land they would have a chance to hide, to lose themselves in the thickets. This was Toco territory; the war party would not dare remain long, for fear of discovery by Toco warriors.

The canoe crashed into an overhanging branch—and Hotfoot felt a stunning blow to his left shoulder. His left arm went numb, and his hand lost its hold on the paddle. It didn't matter; he had to scramble out of the canoe as it halted, and splash to the shore behind the other two.

Alligator and Woodpecker were fighting their way to land as the enemy canoe came close. An arrow whistled past Hotfoot's head to graze Woodpecker's thigh. Woodpecker seemed not to notice it as he scrambled through the brush. Then they were all through, and foliage protected their rear for the moment. The Cale would not shoot blindly; arrows were too precious to waste.

Alligator turned to the others—and paused, staring at Hotfoot's shoulder. Hotfoot looked, and was amazed.

An arrow was projecting from his shoulder. The head was deep in the flesh, the shaft and feathers behind. That was the blow he had felt!

"Hold him!" Woodpecker whispered.

Wordlessly, Alligator grabbed Hotfoot from the front, clasping him in an embrace that left him anchored. Hotfoot clenched his teeth and stood still, knowing what was coming. He could not make a sound, for that would show unmanly weakness, and could attract the Cale.

There was a wrench, and a terrible flare of pain. Woodpecker was yanking the arrow out, as he had to, but it wasn't coming readily. It tore at the muscle and sinew, the agony of it radiating out through Hotfoot's whole body. He clenched his teeth, making no sound, though all his world was agony. Then the arrow snapped.

Woodpecker held the shaft up. It had broken off, leaving the arrowhead embedded. Hotfoot knew that was bad; it meant the malignant Cale spirit of the arrow remained in him, and it would surely cause him much grief.

As the surge of pain abated, he felt the wetness on his back, and knew it was his blood flowing down. That, too, was bad, for it was good blood that leaked from this region, not bad blood.

Now came a clamor behind. The Cale were landing! The three ran, Woodpecker leading the way, weaving through the brush. But Hotfoot could not keep the pace; his shoulder was throbbing and his feet were tiring.

In a moment Woodpecker realized what the problem was. The wound was weakening Hotfoot. "Hide," he said. "We will lead them away from you."

"They will follow the blood," Alligator pointed out.

Woodpecker scooped his hand along Hotfoot's back, soaking it in warm blood. "I will lead them with blood!" Then he was away, his hand extended, the blood dripping from it.

Hotfoot stumbled to the side, hunched over so that more blood would not drip, and crawled between low palmetto fronds. As he heard the Cale charging, he stretched out under the fronds, face down, his left arm dragging. If the ruse worked, he would be safe; if not . . .

It worked. The Cale warriors paused only to inspect the blood at the spot where the three had stopped, then charged on after the drops Woodpecker had planted.

But Hotfoot knew he had to move on, because it would not take long for the Cale to realize that they now pursued only two, and that the blood had stopped. They could come back, rechecking the trail, and then they would find the offshoot. They would be after Hotfoot, and he could not outrun them.

Indeed, he could hardly run at all now. He hauled himself to his feet, and almost collapsed. He staggered on, away from the direction of the other path. He knew he would have to stop soon. Where could he go, where he would not be followed?

Here.

He gazed bleakly about, trying to identify what he had heard. Who had called? Had he really heard anything?

Then he realized he was close to the ancient holy place, where youths never went. The spirits of the dead were here, guarding their burial ground. There would be terrible retribution against almost any living person who defiled this site. Only a priest could come here.

Yet he had heard a call. Where could it have come from, except here?

Was he about to die, and the spirits knew this? But he was a mere stripling, a boy, not worthy to share their habitat. They should have only contempt for him.

No. He was now a man. He had made his first kill, and received his first serious wound. If he died of it, he died a man, even though he had not yet been awarded a man's name. The spirits would know that.

He staggered on toward the low mound, knowing where it was. The scene seemed to be tilting crazily, and the trees were whirling around him, but somehow he kept his feet until the sacred hill was there.

It was not high, only up to his belly, but it spread out widely. It was just a small rise, overgrown with brush and small trees, undisturbed. But everyone knew what it was. No one ever confused a burial site.

Hotfoot felt his consciousness fading. "O spirits of the mound," he gasped. "I come as a supplicant. Accept—"

Then he fell, his invocation unfinished. ♦

Book Reviews



Xenocide

by Orson Scott Card
Tor Books, July 1991
448 pages, \$21.95 (hardcover)

Xenocide is easily the most ambitious, important, gripping, and frustrating science fiction novel I've read so far this year. It's the sequel to *Ender's Game* and *Speaker for the Dead*, Card's multiple award-winners. It's not quite as satisfying as the nearly perfect boy-saves-humanity tale of *Ender's Game*, but it's much better than the fundamentally flawed *Speaker for the Dead*.

This story picks up with Ender Wiggins—living under the name Andrew Wiggins because Ender is universally despised for committing xenocide and wiping out the alien buggers—3,000 years in the future from events in *Ender's Game*. He's middle-aged, married, and living on a quiet, out-of-the-way planet named Lusitania. Things would seem idyllic, but they're not.

His stepchildren are brilliant—and at odds with each other and everyone else. Ender's wife has left him and entered a convent. The planet harbors a possibly intelligent virus, which has the potential to wipe out humanity if it ever gets loose. The bugger hive queen Ender saved earlier in the series is rebuilding her race on this world. And Congress has just dispatched a fleet of ships to blow Lusitania to dust.

Card manages a difficult juggling act, keeping all these events in line

(and interweaving a subplot involving Congress's genetic manipulation of the Chinese-descended people of another planet, Path). The threats are all real. The characters are all real. Card makes you care about what happens to them all. As he takes the reader into each character's head, we see all viewpoints at once . . . and learn how all are equally valid in different contexts.

If the virus is sentient (and it may be!), destroying it to save humanity would be xenocide. Destroying the virus would also destroy the friendly piggies, the planet's native intelligent life, who have developed a symbiotic relationship with the virus. If Ender and his stepchildren must decide whether humanity or the virus/piggies will live . . . which race will it be? Can you make a decision to wipe out an entire sentient species?

Despite all these events, there is a rather startling lack of real action. The plot progresses for the most part through discussion. Characters learn things, then disseminate the information, draw new conclusions, and keep going. All of the galaxy-shaking dramatic events remain (for the most part) in the background, leaving characters free to dominate the stage. If this was a deliberate plotting move on Card's part, it's an interesting one. It puts the book on a more intellectual level, and forces the reader to think about what's going on, rather than vicariously experience a roller-coaster ride of actions and reactions.

Does the book work? In most ways, yes. My biggest qualms lie with its lack of clear resolutions to all problems posed. At the end, there are just as many plot threads left loose as are tied up. We already know another book is coming to finish off the series; hopefully it won't take too long.

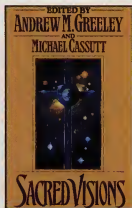
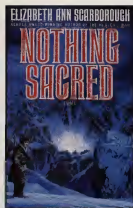
Do pick up a copy of *Xenocide* now, though. Tor Books is pushing the book hard, trying to give Orson Scott Card the breakout sales of Asimov, Clarke, and McCaffrey; their efforts, combined with the magnitude of the series's success so far, guarantee *Xenocide* will be this fall's biggest SF book. Despite its lack of a concrete resolution, you can bet the book will be on almost every award ballot next year. —JGB

The Magic Wagon

by Joe R. Lansdale
Borderlands Press, April 1991
146 pages, \$50.00 (hardcover)

Borderlands Press is a small, specialty publishing company run by horror writer Tom Monteleone (who also designs and typesets the books). Monteleone seems most interested in publishing signed-and-slipcased limited edition books by cult classic authors. Besides Lansdale's book, Monteleone is republishing all of Harlan Ellison's works in uniform hardcover editions.

The Magic Wagon is one of those special books which really defy categorization. It's a beautifully written



fantasy set in the west just after the Civil War. We start with Buster Fogg, a nice enough boy whose life is turned upside down by a tornado. It kills his parents, sweeps away his house, wrecks his family's farm. When the bank forecloses, Buster sets off on his own to seek his fame and fortune.

He gets picked up by two traveling showmen, Billy Bob and Albert, who travel the country by wagon. They do trick shooting, have a wrestling ape, and sell a miracle Cure-All. Billy Bob also claims to be the illegitimate son of Wild Bill Hickok. Albert is an ex-slave.

When the three of them acquire (in a rather unscrupulous deal) the mummified body of the real Hickok, which has been preserved in a magical box by an old Indian medicine man, things get weird. It's as if the spirit of Hickok's gun has taken possession of Billy Bob, turning him into a daring, bullying braggart gunman. It's up to Albert and Buster to save him, if they can.

It's not so much the plot (which is wild and wonderful) as the prose that I find appealing. Lansdale is a master of the odd, poetic phrase, and his characters talk like people ought to talk. I find myself rereading paragraphs just for the joy of his writing, as when Buster (his foot broken from the tornado) meets up with the wagon:

* * *

At first, I thought what was in the cage was a deformed colored

fella, but when I got closer, I seen it was some kind of animal covered in black fur. It was about the scariest ugliest damned thing I'd ever seen.

Right then I was feeling a mite less proud than I had been earlier that morning, so I got them crutches under my sore arms and hobbled out into the road waving a hand at the wagon. I was aiming on getting a ride or getting run slap over so I could end the torture. I didn't feel like I could crutch another mile.

The wagon slowed and pulled alongside me. The driver yelled, "Whoa, you old ugly mules," and the harness bells ceased to shake.

I could see the animal in the cage good now, but I still couldn't figure on what it was. There was some yellow words painted above the cage that said, "THE MAGIC WAGON," and to the right of the cage was a little sign with some fancy writing on it that read: "Magic Tricks, Trick Shooting, Fortune Telling, Wrestling Ape, Side Amusements, Medicine For What Ails You, And All At Reasonable Prices."

Sounded pretty good to me.

* * *

It sounds pretty good to me, too. If you're not already a Lansdale fan, you might want to start with his more readily locatable thrillers, *Cold in July* and *Savage Season*, which are Bantam paperbacks. I bet you'll be searching for more soon enough.

You can order *The Magic Wagon* from: Borderlands Press, P.O. Box 32333, Baltimore, MD 21208. Enclose a couple of dollars for postage and handling. — JGB

Xenocide

by Orson Scott Card
Tor Books, July 1991
448 pages, \$21.95 (hardcover)

As an exercise in theme, *Xenocide* is as far-ranging a character study as you'll find in modern SF. But there's a catch—to keep its thematic structure intact, the novel makes leaps of logic that strain its science-fictional credibility.

On a broad level, Orson Scott Card is writing about loyalty. There's Han Qing-jao's loyalty to the unseen gods haunting her existence, tenuously balanced with loyalty to her father. Han Fei-tzu's loyalty is divided between oaths he has made to Starways Congress and the moral imperative of saving the distant world of Lusitania from obliteration by Congressional forces. Meanwhile, on Lusitania, Ender Wiggin's family and friends find their own loyalties torn, as the human colony struggles to contain or destroy the deadly descolada virus—whose possible sentience further complicates the ethical dilemma.

There's not an uninteresting character in Card's cast. Ender Wiggin remains at the heart of the Lusitanian conflicts, whose participants are portrayed with passionate clarity. On

faraway Path, the tension between Qing-jao and Fei-tzu, balanced by the common sense of servant girl Si Wang-mu, is equally compelling. And the intangible Jane comes into her own in *Xenocide*, learning the secrets of her existence just as events conspire to threaten it.

Some of the resolutions, though, are intriguing rather than satisfying. Card carefully develops the concept of "philotic twinning"—that all life is subatomically interconnected by intangible tendrils of sheer will. Yet once the descolada's possible sentience is suggested, no one thinks to apply this premise to the virus, examining its philotic connections to see what data they might yield. It's not unreasonable, in the deadline-charged environment Card creates, that the descolada's intelligence is never firmly resolved. But it is curious that his characters, for all their brilliance, miss this significant potential avenue of analysis.

A second unsettling element concerns the colonists' startling approach to faster-than-light travel. The mechanism is unconventional, though it flows logically from the underpinnings of Card's universe. But it's entirely too convenient in two senses: given the system's single essential component, its discovery comes much later than might have been expected; and as implemented, the system is far more precise than is necessary. (It also has a strange and spectacular side effect that opens—and arguably ignores—a whole new can of philotes. Suffice to say that neither life nor death are apparently what they used to be.)

Both these reservations amount to second-guessing the novel's internal logic—which is dangerous in a book where the protagonists are pointedly given humanity's weaknesses along with its strengths, and where, as with life, loose ends aren't tied off neatly when the story stops. It's also easy to greet *Xenocide* with unreasonable expectations: either that its brilliance will surpass its award-winning predecessors, or that it will inevitably falter by comparison.

The more reasoned judgment is that neither extreme is accurate.

Xenocide is eloquent and thoughtfully conceived, and its imperfections should be grounds for discussion rather than disapproval. — JCB

Deepwater Dreams

by Sydney J. Van Scyoc
Avon Books, June 1991
256 pages, \$3.95 (paperback)

One of SF's most popular plots is the coming-of-age story in which the protagonist must choose between her familiar but stagnant culture and the promise of a new, more enlightened way of life. But while the outline and characters of *Deepwater Dreams* fit squarely into that comfortable mold, author Sydney Van Scyoc rings an interesting change on the choice itself.

The setup comes straight from the cookie cutter. Nuela is a young woman with adult responsibilities, but little status. Her parents are long gone, leaving a younger sister to be raised, and the demands of child-rearing have left Nuela with little time for her own pleasure. But when a tidal wave wrecks havoc on her island home, circumstances force her unexpectedly into a strange sea-dwelling society whose very existence is kept largely secret from the land-based population.

It's here that matters become more intriguing. Though the oceanic folk consider themselves generally above the land-dwellers, choice and tradition divide them into a dozen different, often combative subgroups. Initially drafted as a messenger to one of these colonies, Nuela is promptly captured by a rival group and becomes a key player in a conflict where she barely knows the rules. Refreshingly, the issues presented aren't immediately clear-cut, and the decisions Nuela must make emerge from diplomacy and compromise rather than black-and-white idealism.

Van Scyoc's worldbuilding is both conservative and implausible, or at least vague. A prologue makes it clear that several species of sea life have been genetically tailored to assume specific roles in the water-world's ecology. The human popula-

tion has also been engineered, but rather oddly. While not water-breathers or even cetaceans, they display extraordinary swimming ability and endurance, and can access a body of dream-knowledge that is "god as the word of the gods." This "god-lore" is badly underexplained, and strikes an anachronistic note in an otherwise straightforward science-fictional atmosphere.

Deepwater Dreams is clearly over on the "adventure" end of the SF spectrum, designed as a pleasant diversion rather than a high-powered technical or literary speculation. Van Scyoc, though, gives the book more dimension than the average adventure yarn—and even if some of the dimensions are uncharted, the overall execution is good enough to push the novel to a place near the front of its class. — JCB

Shadow Leader

by Tara K. Harper
Del Rey Books, May 1991
324 pages, \$5.95 (paperback)

Anne McCaffrey's protagonists link minds with dragons; Mercedes Lackey's do the same with sentient horses. Comparative newcomer Tara Harper adopts the same premise, but makes more thorough science-fictional use of the notion in this sequel to last year's *Wolfwalker*. Where McCaffrey and Lackey take the idea of the telepathic bond for granted, Harper explores the costs of such a link along with its benefits.

For travelers desperately avoiding capture by agents of a relentless spymaster, Dion's wolfwalker status can be highly useful. Within limits, she can see what her wolf sees and use their combined senses to greatly enhance the group's scouting ability. Moreover, the genetically enhanced wolves of Dion's world are the key to a long-lost psychic healing power, and only Dion's access to the technique has kept the entire party alive and functional to date.

The catch is that tapping the link's full power sends Gray Hishn's lupine instincts flowing into Dion's mind, and only enormous willpower can prevent her from surrendering

to the wolf-consciousness. The healing technique is especially dangerous to use lightly, or when the user herself is weakened.

Needless to say, that means Harper constantly drops Dion and her friends into situations where she must resort to her healing powers or override Gray Hishn's instincts for self-preservation. The band treks cautiously from a sparsely traveled mountain wilderness through farmland and village toward the enemy capital, where they confront both political intrigue and arena-style combat before regaining their freedom.

Apart from the thoughtful execution of the wolf-linkage, Harper's storytelling strengths are in pacing and scene-setting. The world she builds has a knowledgeable frontier-style ruggedness, and her characters move through it with aggressive determination. Whether the adversaries are carnivorous plants or human opponents, the frequent action sequences are crisp and compelling.

The briskness is almost enough to overcome the book's two real liabilities. *Shadow Leader's* plot doesn't stand well on its own; it's really the second half of the story begun in *Wolfwalker*. Del Rey's packaging clearly establishes that the books are connected (and the Edwin Herder cover paintings are a welcome contrast to Del Rey's usually crowded jacket art), but stops short of making the link clear.

More seriously, Harper's lively style turns noticeably thicker whenever it gets near a psychological or romantic subplot. That's particularly true of the dialogue, where characters' names pop up as if to identify Important Lines ("You deny your own grief, Aranur"), and the tone takes on an earnestness somewhere between cloying and cute. Harper's players are interesting enough on their own; she doesn't need to work this hard to make their relationships convincing.

But the occasional heaviness is largely counterbalanced by the book's spirited pace, and the twist of wildness in the bond between Dion and Hishn lends freshness to a familiar SF concept. *Shadow Leader*

is both traditional and distinctive in its approach to its material, and that's rare enough to make it well worth a look. — *JCB*

Nothing Sacred

by Elizabeth Ann Scarborough
Doubleday Foundation, March 1991
342 pages, \$10.95 (trade paperback)

Elizabeth Ann Scarborough has followed her Nebula Award-winning *The Healer's War* with another book about what happens to people when countries go to war. In *Nothing Sacred*, the place is Tibet sometime in the future, and the People's Republic of China, India and the USSR are all fighting each other over control of Tibet and the Himalayas. The United States, as part of the NACAF (North American Continental Allied Forces) alliance, has decided to not play favorites and is sending arms and soldiers to fight and die for all three sides.

If that doesn't make sense, consider that in the U.S. there is chronic overpopulation and unemployment problems, so sending the least employable people off to war (and making sure a chunk of them don't come back) is a relatively palatable way to keep the home front under control.

That's what happens to Viveka Jeng Vanachek. Unemployable because she only has a couple of bachelor's degrees, she enlists in the Army and is turned into a cartographer—with the amount of armament raining down on Tibet, maps rapidly go out of date and need to be constantly updated. On her first air mapping mission, she's shot down, captured by the Tibetans and sent to one of their highest-security prison camps.

The camp, very high up in the bowl of a mountain peak, uses the prisoners as laborers to dig out and catalog a set of ruins. It isn't until she's been there a while that she realizes that there are any number of strange things going on—her cellmates can't remember how long they've been here, and they talk about aspects of their past as though they were recent things—even

though, to Viveka, the events had occurred long before she was born.

One look at the cover, which is both inaccurate to the story and a spoiler as far as what the story is about, is going to clue the reader in to a major piece of the puzzle—the ruins that are being dug out are the remains of the village known as Shangri-La, the legendary place of Tibetan magic. It was destroyed early in the war by an errant bomb, and the Tibetans are trying to bring it back to life before it's too late.

Too late for what? The discovery of the reasons for the existence of the camp and what it is there for is a major part of the enjoyment of the book. Unfortunately, the back cover gives part of it away—the magic of Shangri-La continues, and in the upcoming nuclear holocaust, only the output of Shangri-La will give humanity a chance to survive the bombs and the fallout—if they can get it ready in time to support them when the rest of the world burns.

Scarborough has written a fascinating story here—a new look at the old Tibetan ways that is also a scathing indictment of modern civilization, especially western civilization. Even with all the hints and the spoilers provided, you're not going to find your enjoyment of this book reduced. A complex story, very interesting characters in a truly unique and picturesque setting makes this one of the top books of the year. This one may well find itself onto the short list for the awards. — *CVR*

Sacred Visions

edited by Andrew M. Greeley and Michael Cassutt
Tor Books, July 1991
320 pages, \$12.95 (trade paperback), \$22.95 (hardcover)

In this reprint theme anthology, Greeley and Cassutt have put together a collection of SF stories with a Catholic theme. Unlike a lot of "Christian" fiction being published today, the stories contained are not fictionalized proselytizing or blind justifications of the Christian ethic.

Instead, they have collected twelve stories that closely examine

the meaning of religion and faith. This anthology is an attempt to bring together stories that, instead of being religious, attempt to look at why religion exists and why it is such an important part of being human. Some of the stories are well-known and considered classics in the field—James Blish is represented by “A Case of Conscience,” and Walter M. Miller, Jr.’s “A Canticle for Leibowitz” is reprinted.

Jeff Duntemann’s story, “Our Lady of the Endless Sky,” looks at the place where it stops being “good luck” and starts being “a miracle”—God works in mysterious ways, and sometimes the religious people are the last to realize it. James Patrick Kelly is represented with “Saint Theresa of the Aliens,” a story in which religion is used and abused for the best of intentions.

By far the best story in the book is Nancy Kress’s “Trinity,” in which technology has progressed to the point where the question “Does God exist?” can finally be definitively answered—but does humanity really want to know? A close second is Robert Silverberg’s “The Pope of the Chimps,” in which a family of chimpanzees used for research are introduced to the concept that humans—in effect their gods, since the entire reality they live in is controlled by them—can die. If your God is mortal, what does that say about you? If a primate’s ultimate goal in life is to die and become human, what happens when you find out that’s not the final step?

Other stories include Jack McDevitt’s “Gus,” which tries to look at whether an Artificial Intelligence personality can have a soul (but does so with an unsatisfying ending—either you have a soul, and the priest can not assist or allow suicide, or you don’t have a soul and the priest can’t give final rites and a full burial. McDevitt tried to have it both ways and it bothered me); Cassutt’s “Curious Elations,” Gene Wolfe’s “The Seraph from Its Sepulcher,” Anthony Boucher’s “The Quest for Saint Aquin,” R.A. Lafferty’s “And Walk Now Gently Through the Fire,” and Greeley’s own “Xorinda the

Witch,” the only story in the book I felt wasn’t good enough to deserve publication—it has a weak plot and cardboard characters, is excessively preachy, and has a horrid *deus ex machina* ending that makes the entire story irrelevant.

One bad story out of twelve’s pretty good, and this weakness is well overcome by the strength of the Silverberg and Kress stories. This is a strong anthology on an interesting theme, even for (or perhaps especially for) non-Catholics. — CVR

Orion in the Dying Time

by Ben Bova

Tor Books, August 1991

416 pages, \$18.95 (hardcover)

The latest book in the *Orion* series from Ben Bova takes us far back into early prehistory to look at the death of the dinosaurs and the very early days of humanity’s predecessors.

Orion—the hunter of ancient legend—is a construct of the Creators, who, for lack of a better term for them, are our gods. These are the beings that were worshipped in various cultures—Roman, Greek, Sumerian, and others. They aren’t gods, though (recalling Clarke’s law on magic) it’s somewhat hard to tell the difference. Instead, they are humans from the remote future that have evolved into beings as far advanced from us as we are from the first mammals. They are guardians of the time stream, traveling back and forth through the ages making sure that the fibers of reality stay neatly weaved and smooth.

That’s difficult, though—there are various factors that cause problems in the past that might well change the future these beings have come from, perhaps change it enough that they may never exist. (Or never did exist? Bova is playing fast and loose with concepts like free will, predestination and causality. If it is possible to have never existed in the far future, then that’s the threat they face—the English language just doesn’t handle time-travel concepts well.)

In this case, the threat is a creature called Set. He is as advanced

and powerful as the gods, but comes from a planet where the reptiles didn’t die and now reign supreme. He will, in fact, be worshipped as Set in the Egyptian culture, unless he succeeds in his plan to destroy all life on Earth and prepare it to take the population of his world, which needs to emigrate before their sun goes nova. That he didn’t succeed doesn’t mean he won’t succeed, since simply because we haven’t been wiped off the earth doesn’t mean he isn’t going to be able to wipe us off the earth back in the pre-Cambrian (isn’t time travel fun?).

The *Orion* stories are a lot of fun, but you can’t take them too seriously. Bova has built a cosmology that—while not impossible—is pretty unlikely based on what we know about the development of our solar system. On top of that, his view of the extermination of the dinosaurs and the transformation of the solar system to our current form probably wouldn’t stand up to rigorous scientific examination, but that really isn’t the point of the book—the science was put together to support the story, not the other way around.

What bothers me about this book are the Creators. When these so-called guardians run up against a power that is their peer, someone who can literally make them all go poof and make them have-never-existed, they don’t fight him directly, but instead send Orion. Orion is a powerful being (even the Creators don’t realize how powerful), but he is mortal and nowhere near the power of Set. You don’t send Boy Scouts up against an army, especially when survival is at stake, yet that’s what Bova has done here.

Orion in the Dying Time is a competent book, but if I had it to do over again, I’d probably wait until it comes out in paperback to read it. It’s not bad, but it’s also not much more than an evening’s enjoyment that’ll be soon forgotten. — CVR ♦

The Face of the Waters

From the author's forthcoming novel
of the same name

Robert Silverberg

On this tropical night Lawler was barefoot and wore only a twist of yellow cloth made from water-lettuce fronds around his waist. The air was warm and heavy and the sea was calm. The island, that webwork of living and semi-living and formerly living tissue drifting on the breast of the vast world-spanning ocean, swayed almost imperceptibly beneath his feet. Like all the inhabited islands of Hydros, Sorve was rootless, a free-floating wanderer, moving wherever the currents and winds and the occasional tidal surge cared to carry it. Lawler was able to feel the tightly woven withes of the flooring giving and spreading as he walked, and he heard the sea lapping at them just a couple of meters below. But he moved easily, lightly, his long



Illustration by Nick Smith

lean body attuning itself automatically to the rhythms of the island's movements. They were the most natural thing in the world to him.

The softness of the night was deceptive. Most times of the year Sørve was something other than a soft place to live. Its climate alternated between periods of hot-and-dry and cold-and-wet, with only the sweet little summer interlude when Sørve was drifting in mild, humid equatorial latitudes to provide a brief illusion of comfort and ease. This was the good time of year, now. Food was abundant and the air was sweet. The islanders rejoiced in it. The rest of the year life was much more of a struggle.

Unhurriedly Lawler made his way around the reservoir and down the ramp to the lower terrace. It was a gentle slope from here to the island's rim. He went past the scattered buildings of the shipyard from which Nid Delagard ran his maritime empire and the indistinct domed shapes that were the waterfront factories, in which metals—nickel, iron, cobalt, vanadium, tin—were extracted from the tissues of low-phyllum sea creatures by slow, inefficient processes. It was hard to make out anything clearly, but after some forty years of living on this one small island Lawler had no trouble getting around any part of the place in the dark.

There was no hint of morning yet. The sky was a deep black. Some nights Sunrise, the sister planet of Hydros, gleamed in the heavens like a great blue-green eye, but tonight Sunrise was absent on the other side of the world, casting its bright glow on the mysterious waters of the unexplored far hemisphere. One of the three moons was visible, though, a tiny point of hard white light off to the east, close to the horizon. And stars shimmered everywhere, cascades of glittering silver powder scattered across the blackness, a ubiquitous dusting of brightnesses. That infinite horde of distant suns formed a dazzling backdrop for the one mighty foreground constellation, the brilliant Hydros Cross—two blazing rows of stars that arched across the sky at right angles to each other like a double cincture, one spanning the world from pole to pole, the other marching steadfastly along above the equator.

For Lawler these were the stars of home, the only stars he had ever seen. He was Hydros-born, fifth generation. He had never traveled to any other world and never would. Sørve Island was as familiar to him as his own skin. And yet he sometimes tumbled without warning into frightening moments of confusion when all sense of familiarity dissolved and he felt like a stranger here: times when it seemed to him that he had just arrived on Hydros that very day, flung down out of space like a falling star, a castaway from his truly native place far away. Sometimes he saw the lost mother world of Earth shining in his mind, bright as any star, its great blue seas divided by the enormous golden-green land masses that were called continents, and he thought, *This is my home, this is my true home*. Lawler wondered if any other humans on Hydros ever experienced something like that now and again. Probably so, though no one ever spoke of it. They were all strangers here, after

all. This world belonged to the Gillies. He and everyone like him here lived here as uninvited guests.

He had reached the brink of the sea now. The familiar railing, rough, woody-textured like everything else on this artificial island that had neither soil nor vegetation, came up to meet his grasp as he clambered to the top of the seawall.

Here at the wall the slope in the island's topography, which ran gradually downhill from the built-up high ground in the interior and the ocean bulwark beyond it, reversed itself sharply and the flooring turned upward to form a meniscus, a crescent rim, that shielded the inner streets against all but the most severe of tidal surges. Grasping the rail, leaning forward over the dark lapping water, Lawler stood staring outward for a moment, as though offering himself to the all-surrounding ocean.

Even in the darkness he had a complete sense of the comma-shaped island's form and his exact place along its shore. The island was eight kilometers long from tip to tip, and about a kilometer across at its widest point, measuring from the bayfront to the summit of the rear bulwark that held back the open sea. He was near the center, the innermost gulf. To his right and left the island's two curving arms stretched outward before him, the rounded one where the Gillies lived, and the narrow tapering one where the island's little handful of human settlers clustered close together.

Right in front of him, enclosed by that pair of unequal arms, was the bay that was the living heart of the island. The Gillie builders of the island had created an artificial bottom there, an underwater shelf of interlaced wood-kelp timbers attached to the mainland from arm to arm, so that the island always would have a shallow, fertile lagoon adjacent to it, a captive pond. The wild menacing predators that haunted the open sea never entered the bay: perhaps the Gillies had made some treaty with them long ago. A lacing of the spongy bottom-dwelling night-algae, needing no light, bound the underside of the bay floor together, ever protecting and renewing it with their steady stubborn growth. Above that was sand, washed in by storms from the great unknown ocean floor farther out. And above that a thicket of useful aquatic plants of a hundred different species or more, in which all manner of sea creatures swarmed. Shellfish of many sorts inhabited its lower reaches, filtering sea water through their soft tissues and concentrating valuable minerals within themselves for the use of the islanders. Sea worms and serpents moved among them. Plump and tender fish grazed there. Just now Lawler could see a pod of huge phosphorescent creatures moving out there, emanating pulsating waves of blue-violet light: the great beasts known as mouths, perhaps, or perhaps they were platforms, but it was still too dark to tell. And beyond the bright green water of the bay was the great ocean sea, rolling to the horizon and past it, holding the entire world in its grasp, a gloved hand gripping a ball. Lawler, staring toward it, felt for the millionth time the weight of its immensity, its thrust and power.

A grating bass voice behind him said, "Lawler?"

Caught by surprise, Lawler whirled abruptly, his heart thundering. He squinted into the gray darkness. He could just barely make out the figure of a short, stocky man with a heavy shock of long, greasy-looking hair standing in the shadows ten or twelve meters to the inland side of him.

"Delagard? That you?"

The stocky man stepped forward. Delagard, yes. The self-appointed top dog of the island, the chief mover and shaker. What the hell was he doing skulking around here at this hour?

Delagard always seemed to be up to something tricky, even when he wasn't. He was short but not small, a powerful figure built low to the ground, thick-necked, heavy-shouldered, paunchy. He wore an ankle-length sarong that left his broad shaggy chest bare. Even in the darkness the garment glowed in luminous ripples of scarlet and turquoise and hot pink. Delagard was the richest man in the settlement, whatever that meant on a world where money itself had no meaning, where there was hardly anything you could spend it on. He was Hydros-born, like Lawler, but he owned businesses on several islands and moved around a lot. Delagard was a few years older than Lawler, perhaps forty-eight or fifty.

"You're out pretty early this morning, doc," Delagard said.

"I generally am. You know that." Lawler's voice was tighter than usual. "It's a good time of day."

"If you like to be alone, yes." Delagard came alongside Lawler and clapped his hand down on the seawall railing in a confident, hearty way, as if this island were his kingdom and the railing his scepter. "You haven't asked me yet why I'm up this early."

"No. I haven't."

"Looking for you, is why."

"Very early to be paying a call on me, if it's a professional thing," Lawler said. "Or a social call, for that matter. Not that you would." He pointed to the horizon. The moon was still gleaming there. No sign of the first light of the morning was visible yet. The Cross, even more brilliant than usual with Sunrise not in the sky, seemed to throb and pulse against the intense blackness. "I generally don't start my office hours before daybreak. You know that, Nid."

"A special problem," said Delagard. "Couldn't wait. Best taken care of while it's still dark."

"Medical problem, is it?"

"Medical problem, yes."

"Yours?"

"Yes. But I'm not the patient."

"I don't understand you."

"You will. Just come with me."

"Where?" Lawler said.

"Shipyard."

What the hell. Delagard seemed very strange this morning. It was probably something important. "All right," said Lawler. "Let's get going, then."

Without another word Delagard turned and started along the path that ran just inside the seawall, heading

toward the shipyard. Lawler followed him in silence.

The path here followed another little promontory parallel to the one where the power plant that the Gillies had just finished building stood, and as they moved out on it they had a clear view of the plant. Gillies were going in and out, carrying armloads of equipment.

"Those slippery fuckers," Delagard muttered. "I hope their plant blows up in their faces when they start it up. If they ever get it started up at all."

They rounded the far side of the promontory and entered the little inlet where Delagard's shipyard stood. It was the biggest human enterprise on Sorve by far, employing more than a dozen people. Delagard's ships constantly went back and forth between the various islands where he did business, carrying trade goods from place to place, the modest merchandise turned out by the various cottage industries that humans operated: fishhooks and chisels and mallets, bottles and jars, articles of clothing, paper and ink, hand-copied books, packaged foods, and such. The Delagard fleet also was the chief distributor of metals and plastics and chemicals and other such essential commodities which the various islands so painstakingly produced. Every few years Delagard added another island to his chain of commerce. From the very beginning of human occupation of Hydros, Delagards had been running entrepreneurial businesses here, but Nid Delagard had expanded the family operation far beyond its earlier levels.

"This way," Delagard said.

A strand of pearly dawnlight broke suddenly across the eastern sky. The stars dimmed and the little moon on the horizon began to fade from sight as the day started to come on. The bay was taking on its emerald morning color. Lawler, following Delagard down the path into the shipyard, glanced out into it and had his first clear view of the giant phosphorescent creatures that had been cruising around there all night. He saw now that they were mouths: immense flattened baglike creatures, close to a hundred meters in length, that traveled through the sea with their colossal jaws agape, swallowing everything that lay before them. Once a month or so, a pod of ten or twelve of them turned up in Sorve harbor and disgorged the contents of their stomachs, still alive, into huge wickerwork nets kept there for that purpose by the Gillies, who harvested them at leisure over the weeks that followed. It was a good deal for the Gillies, Lawler thought—tons and tons of free food. But it was hard to see what was in the deal for the mouths.

Delagard said, chuckling, "There's my competition. If I could only kill off the fucking mouths, I could be hauling in all sorts of stuff myself to sell to the Gillies."

"And what would they pay you for it with?"

"The same things they use to pay me now for the things I sell them," said Delagard scornfully. "Useful elements. Cadmium, cobalt, copper, tin, arsenic, iodine, all the stuff this goddamn ocean is made of. But in very much bigger quantities than the dribs and drabs they dole out now, or that we're capable of extracting ourselves. We get the mouths out of the picture somehow, and then I supply the Gillies with their meat, and they

load me up with all kinds of valuable commodities in return. A very nice deal, let me tell you. Within five years I'd make them dependent on me for their entire food supply. There'd be a fortune in it."

"I thought you were worth a fortune already. How much more do you need?"

"You just don't understand, do you?"

"I guess not," Lawler said. "I'm only a doctor, not a businessman. Where's this patient of yours?"

"Easy, easy. I'm taking you as fast as I can, doc." Delagard gestured seaward with a quick brushing movement of his hand. "You see down there, by Jolly's Pier? Where that little fishing boat is? That's where we're going."

Jolly's Pier was a finger of rotting kelp-timber sticking out thirty meters or so beyond the seawall, at the far end of the shipyard. Though it was faded and warped, battered by tides and nibbled by drillworms and raspers, the pier was still more or less intact, a venerable artifact of a vanished era. A crazy old sailor had constructed it, long dead now, a grizzled weird relic of a man whose claim it had been to have journeyed solo completely around the world—even into the Empty Sea, where no one in his right mind would go, even to the borders of the Face of the Waters itself, that immense forbidden island far away, the great planetary mystery that apparently not even the Gillies dared to approach. Lawler could remember sitting out here at the end of Jolly's Pier when he was a boy, listening to the old man spinning his wild, flamboyant tales of implausible, miraculous adventure. That was before Delagard had built his shipyard here. But for some reason Delagard had preserved the be-draggled pier. He must have liked to listen to the old man's yarns too, once upon a time.

One of Delagard's fishing coracles was tied up alongside it, bobbing on the bay swells. On the pier near the place where the coracle was moored was a shed that looked old enough to have been Jolly's house, though it wasn't. Delagard, pausing outside it, looked up fiercely into Lawler's eyes and said in a soft husky growl, "You understand, doc, whatever you see inside here is absolutely confidential."

"Spare me the melodrama, Nid."

"I mean it. You've got to promise you won't talk. It won't just be my ass if this gets out. It could screw us all."

"If you don't trust me, get some other doctor. But you might have some trouble finding one around here."

Delagard gave him a surly look. Then he produced a chilly smile. "All right. Whatever you say. Just come on in."

He pushed open the door of the shed. It was utterly dark inside, and unusually humid. Lawler smelled the tart salty aroma of the sea, strong and concentrated as though Delagard had been bottling it in here, and something else, sour and pungent and disagreeable, that he didn't recognize at all. He heard faint grunting noises, slow and rasping, like the sighs of the damned. Delagard fumbled with something just within the door that made a rough, bristly sound. After a moment he struck a

match, and Lawler saw that the other man was holding a bundle of dried seaweed that had been tied at one end to form a torch, which he had ignited. A dim, smoky light spread like an orange stain through the shed.

"There they are," Delagard said.

The middle of the shed was taken up by a crude rectangular storage tank of pitch-caulked wickerwork, perhaps three meters long and two wide, filled almost to the brim with seawater. Lawler went over to it and looked in. Three of the sleek aquatic mammals known as divers were lying in it, side by side, jammed close together like fish in a tin. Their powerful fins were contorted at impossible angles and their heads, rising stiffly above the surface of the water, were thrown back in an awkward, agonized way. The strange acrid smell Lawler had picked up in the doorway was theirs. It no longer seemed so unpleasant now. The terrible grunting noises were coming from the diver on the left. They were grunts of purest pain.

"Oh, shit," Lawler said quietly. He thought he understood the Gillies' rage now. Their blazing eyes, that menacing snort. A quick hot burst of anger went rippling through him, setting up a brief twitching in his cheek. "Shit!" He looked back toward the other man in disgust, revulsion, and something close to hatred. "Delagard, what have you done now?"

"Listen, if you think I brought you here just so you could chew me out—"

Lawler shook his head slowly. "What have you done, man?" he said again, staring straight into Delagard's suddenly flickering eyes. "What the fuck have you done?"

2

It was nitrogen absorption: Lawler didn't have much doubt of that. The frightful way in which the three divers were twisted up was a clear signal. Delagard must have had them working at some job deep down in the open sea, keeping them down there long enough for their joints, muscles, and fatty tissues to absorb immense quantities of nitrogen; and then, unlikely as that seemed, they evidently had come to the surface without taking the proper time to decompress. The nitrogen, expanding as the pressure dropped, had escaped into their bloodstreams and joints in the form of deadly bubbles.

"We brought them here as soon as we realized there was trouble," Delagard said. "Figuring maybe you could do something for them. And I thought, keep them in water, they need to stay under water, so we filled this tank and—"

"Shut up," Lawler said.

"I want you to know, we made every effort—"

"Shut up. Please. Just shut up."

Lawler stripped off the water-lettuce wrap he was wearing and clambered into the tank. Water went splashing over the side as he crowded himself in next to the divers. But there wasn't much that he could do for them. The one in the middle was dead already: Lawler put his hands to the creature's muscular shoulders and felt the rigor starting to take hold. The other two were more or

less alive—so much the worse for them; they must be in hideous pain, if they were conscious at all. The divers' usually smooth torpedo-shaped bodies, longer than a man's, were bizarrely knotted, each muscle straining against its neighbor, and their glistening golden skins, normally slick and satiny, felt rough, full of little lumps. Their amber eyes were dull. Their jutting underslung jaws hung slack. A gray spittle covered their snouts. The one on the left was still groaning steadily, every thirty seconds or so, wrenching the sound up from the depths of its guts in a horrifying way.

"Can you fix them somehow?" Delagard asked. "Is there anything you can do at all? I know you can do it, doc. I know you can." There was an urgent wheedling tone in Delagard's voice now that Lawler couldn't remember ever hearing in it before. Lawler was accustomed to the way sick people would cede godlike power to a doctor and beg for miracles. But why did Delagard care so much for these divers? What was going on here, really? Surely Delagard didn't feel *guilty*. Not Delagard.

Coldly Lawler said, "I'm no diver doctor. Doctoring humans is all I know how to do. And I could stand to be a whole lot better even at that than I am."

"Try. Do something. Please."

"One of them's dead already, Delagard. I was never trained to raise the dead. You want a miracle, go get your friend Quillan the priest in here."

"Christ," Delagard muttered.

"Exactly. Miracles are his specialty, not mine."

"Christ. Christ."

Lawler felt carefully for pulses along the divers' throats. Yes, still beating after a fashion, slow, uneven. Did that mean they were moribund? He couldn't say. What the hell was a normal pulse, for a diver? How was he supposed to know stuff like that? The only thing to do, he thought, was to put the two that were still alive back in the sea, get them down to the depths where they had been, and bring them up again, slowly enough this time so they could rid themselves of the excess nitrogen. But there was no way to manage that. And it was probably too late anyway.

In anguish he made a futile, almost mystical passes over the twisted bodies with his hands, as though he could drive the nitrogen bubbles out by gesture alone. "How deep were they?" Lawler asked, without looking up.

"We aren't sure. Four hundred meters, maybe. Maybe four-fifty. The bottom was irregular there and the sea was moving around so we couldn't keep close track of how much line we'd paid out."

Clear to the bottom of the sea. It was lunacy.

"What were you looking for?"

"Manganese nuggets," Delagard said. "And there was supposed to be molybdenum down there too, and maybe some antimony. We trawled up a whole goddamned menagerie of mineral samples with the scoop."

"Then you should have used the scoop to bring your manganese up," said Lawler angrily. "Not these."

He felt the right-hand diver ripple and convulse and die as he held it. The other was still writhing, still moaning.

A cold bitter fury took hold of him, fueled as much by contempt as by wrath. This was murder, and stupid unthinking murder at that. Divers were intelligent animals—not as intelligent as the Gillies, but intelligent enough, surely smarter than dogs, smarter than horses, smarter than any of the animals of old Earth that Lawler had heard about in his storybook days. The seas of Hydros were full of creatures that could be regarded as intelligent; that was one of the bewildering things about this world, that it had evolved not just a single intelligent species, but, apparently, dozens of them. The divers had a language, they had names, they had some kind of tribal structure. Unlike nearly all the other intelligent life-forms on Hydros, though, they had a fatal flaw: they were docile and even friendly around human beings, gentle frolicking companions in the water. They could be induced to do favors. They could be put to work, even.

They could be worked right to death, it seemed.

Desperately Lawler massaged the one that hadn't yet died, still hoping in a hopeless way that he could work the nitrogen out of its tissues. For a moment its eyes brightened and it uttered five or six words in the barking, guttural diver language. Lawler didn't speak diver; but the creature's words were easy enough to guess at: *pain, grief, sorrow, loss, despair, pain*. Then the amber eyes glazed over again and the diver lapsed into silence.

Lawler said, as he worked on it, "Divers are adapted for life in the deep ocean. Left to their own devices, they're smart enough to know not to rise from one pressure zone to another too fast to handle the gases. Any sea creature knows that, no matter how dumb it is. A sponge would know that, let alone a diver. How did it happen that these three came up so fast?"

"They got caught in the hoist," Delagard said miserably. "They were in the net and we didn't know it until it surfaced. Is there anything, anything at all that you can do to save them, doc?"

"The other one on the end is dead too. This one has maybe five minutes left. The only thing I can do is break its neck and put it out of its misery,"

"Jesus."

"Yeah. Jesus. What a shitty business."

It took only an instant, one quick snap. Lawler paused for a moment afterward, shoulders hunched forward, exhaling, feeling a release himself as the diver died. Then he climbed out of the tank, shook himself off, and wrapped the water-lettuce garment around his middle again. What he wanted now, and he wanted it very badly, was a good shot of his numbehead tincture, the pink drops that gave him peace of a sort. And a bath, after having been in the tank with those dying beasts.

But his bath quota for the week was used up. A swim would have to do, a little later on in the day. Though he suspected it would take more than that to make him feel clean again after what he had seen in here this morning.

He looked sharply at Delagard.

"These aren't the first divers you've done this to, are they?"

The stocky man didn't meet his gaze.

"No."

"Don't you have any sense? I know you don't have any conscience, but you might at least have sense. What happened to the other ones?"

"They died."

"I assume that they did. What did you do with the bodies?"

"Made feed out of them."

"Wonderful. How many?"

"It was a while ago. Four, five—I'm not sure."

"That probably means ten. Did the Gillies find out about it?"

Delagard's "Yes" was the smallest possible audible sound a man could have made.

"Yes," Lawler mimicked. "Of course they found out. The Gillies always know it when we fuck around with the local fauna. So what did they say, when they found out?"

"They warned me." A little louder, not much, a sullen under-the-breath naughty-schoolboy tone.

Here it comes, Lawler thought. We're at the heart of it at last.

"Warned you what?" he asked.

"Not to use divers in my operations any more."

"But you did, is how it looks. Why the hell did you do it again, if they warned you?"

"We changed the method. We didn't think there'd be any harm." Some energy returned to Delagard's voice. "Listen, Lawler, do you know how valuable those mineral nuggets could be? They could revolutionize our entire existence on this fucking watery hole of a planet! How was I to know the divers would swim right into the god-damned hoist net? How could I figure that they would let themselves stay in it after we signaled that we were lifting?"

"They didn't let themselves stay in it. They must have been tangled up in it. Intelligent diving animals just don't let themselves stay in a net that's rising quickly from four hundred meters."

Delagard glared defiantly. "Well, they did. For whatever reason, I don't know." Then the glare faded, and he offered Lawler the miracle-worker look again, eyes rolling upward imploringly. Still hoping, even now?

"There was nothing whatever that you could have done to save them, Lawler? Nothing at all?"

"Sure there was. There were all sorts of things I could have done. I just wasn't in the mood, I guess."

"Sorry. That was dumb." Delagard actually looked almost abashed. Huskily he said, "I know you did the best you could. Look, if there's anything I can send over to your vaargh by way of payment, a case of grapeweed brandy, maybe, or some good baskets, or a week's supply of banger steaks—"

"The brandy," Lawler said. "That's the best idea. So I can get myself good and drunk and try to forget all about what I saw here this morning." He closed his eyes a moment. "The Gillies are aware that you've had three dying divers in here all night."

"They are? How can you possibly know that?"

"Because I ran into a few while I was wandering around down by the bayshore, and they practically bit

my head off. They were frothing mad. You didn't see them chase me away?" Delagard, suddenly ashen-faced, shook his head. "Well, they did. And I hadn't done anything wrong, except maybe come a little too close to their power plant. But they never indicated before that the plant was off limits. So it must have been these divers."

"You think so?"

"What else could it be?"

"Sit down, then. We've got to talk, doc."

"Not now."

"Listen to me!"

"I don't want to listen, okay? I can't stick around here any longer. I've got other things to do. People are probably waiting for me up at the vaargh. Hell, I haven't even had breakfast yet."

"Doc, wait a second. Please."

Delagard reached out to him, but Lawler shook him off. Suddenly the hot moist air of the shed, tinged now with the sweet odor of bodily decomposition, was sickening to him. His head began to swirl. Even a doctor had his limits. He stepped around the gaping Delagard and went outside. Pausing just by the door, Lawler rocked back and forth for a few moments, closing his eyes, breathing deeply, listening to the grumbling of his empty stomach and the creaking of the pier beneath his feet, until the sudden nausea had left him.

He spat. Something dry and greenish came up. He scowled at it.

Jesus. Some start to the morning.

Daybreak had come by this time, the full show. With Sørve this close to the equator, the sun rose swiftly above the horizon in the morning and plummeted just as abruptly at nightfall. It was an unusually magnificent sky this morning, too. Bright pink streaks, interleaved with tinges of orange and turquoise, were splashed across the vault of the heavens. It looked almost like Delagard's sarong up there, Lawler thought. He had calmed quickly once he was outside the shack in the fresh sea air, but now he felt a new wave of rage churning within him, setting up bad resonances in his gut, and he looked away, down toward his feet, taking deep breaths again. What he needed to do, he told himself, was to get himself home. Home, and breakfast, and perhaps a drop or two of numbreed tincture. And then on to the day's rounds.

He began to head upslope.

Farther inland on the island, people were up, people were moving around.

Nobody slept much past dawn here. The night was for sleeping, the day for working. In the course of making his way back toward his vaargh Lawler encountered and greeted a significant percentage of the island's entire human population. Here at the narrow end where the humans lived, everyone was on top of everyone else all the time.

Most of those to whom he nodded as he walked up the easy slope of the hard, bright yellow wickerwork path were people he had known for decades. Practically

all the population of Sorve was Hydros-born, and more than half of those had been born and raised right here on this island, like Lawler himself. And so most of them were people who had never specifically chosen to spend their entire lives on this alien ball of water, but were doing it anyway, because they hadn't been given any choice. The lottery of life had simply handed them a ticket to Hydros at birth; and once you found yourself on Hydros you couldn't ever get off, because there were no spaceports here, there was no way of leaving the planet except by dying. It was a life sentence, being born here. That was strange, in a galaxy full of habitable and inhabited worlds, not to have had any choice about where you would live. But then there were the others, the ones who had come plummeting in from outside via drop-capsule, who *had* had a choice, who could have gone anywhere in the universe and had chosen to come here, knowing that there was no going away again. That was even stranger.

Dag Tharp, who ran the radio unit and did dental work on the side and sometimes served as Lawler's anesthesiologist, was the first to go by, a tiny angular man, red-faced and fragile-looking, with a scraggy neck and a big, sharply hooked nose emerging between little eyes and practically fleshless lips. Behind him down the path came Sweyner, the toolmaker and glassblower, a little old fellow, knotted and gnarled, and his knotted, gnarled wife, who looked like his twin sister. Some of the newer settlers suspected that she was, but Lawler knew better. Sweyner's wife was Lawler's second cousin, and Sweyner was no kin to him—or her—at all. The Sweyners, like Tharp, were both Hydros-born, and native to Sorve. It was a little irregular to marry a woman from your own island, as Sweyner had done, and that—along with their physical resemblance—accounted for the rumors.

Lawler was near the high spine of the island now, the main terrace. A wide wooden ramp led to it. There were no staircases on Sorve: the stubby inefficient legs of the Gillies weren't well designed for using stairs. Lawler took the ramp at a quick pace and stepped out onto the terrace, a flat stretch of stiff, hard, tightly bound yellow sea-bamboo fibers fifty meters wide, varnished and laminated with seppeltane sap and supported by a trellis of heavy black kelp-timber beams. The island's long, narrow central road cut across it. A left turn took you to the part of the island where the Gillies lived, a right turn led into the shantytown of the humans. He turned right.

Three women in a row came down the road, all of them in loose green robes: Sisters Halla, Mariam, and Thecla, who a couple of years ago had formed some sort of convent down at the tip of the island, past the ashmasters' yard, where bone of all sorts was stored to be processed into lime and then into soap, ink, paint, and chemicals of a hundred uses. No one but ashmasters went there, ordinarily; the Sisters, living beyond the boneyard, were safe from all disturbance. It was an odd place to choose to live, all the same. Since setting up their convent the Sisters had had as little to do with men as they could manage. There were eleven of them altogether by now, nearly a third of all the human women

on Sorve: a curious development, unique in the island's short history. Delagard was full of lewd speculations about what went on down there. Very likely he was right.

"Sister Halla," he said, saluting. "Sister Mariam. Sister Thecla."

They looked at him the way they might have done if he had said something filthy. Lawler shrugged and went on.

The main reservoir was just up ahead, a covered circular tank three meters high and fifty meters across, constructed of varnished poles of sea-bamboo bound together with bright orange hoops of algae fronds and caulked within with the red pitch that was made from water-cucumbers. A berserk maze of wooden pipes emerged from it and fanned out toward the vaarghs that began just beyond it. The reservoir was probably the most important structure in the settlement. The first humans to get here had built it, five generations ago in the early twenty-fourth century when Hydros was still being used as a penal colony, and it required constant maintenance, endless patching and caulking and rehooping. There had been talk for at least ten years of replacing it with something more elegantly made, but nothing had ever been done about it, and Lawler doubted that anything ever would. It served its purpose well enough.

As Lawler approached the great wooden tank he saw the priest who had lately come to live on Hydros, Father Quillan of the Church of All Worlds, edging slowly around it from the far side, doing something extremely strange. Every ten paces or thereabouts Quillan would halt, face the reservoir wall, and stretch his arms out against it in a sort of hug, pressing his fingertips thoughtfully against the wall here and there as though probing for leaks.

"Afraid that the wall's going to pop?" Lawler called to him. The priest was an offworlder, a newcomer. He had been on Hydros less than a year and had arrived on Sorve Island only a few weeks before. "You don't need to worry about that."

Quillan looked quickly around, visibly embarrassed. He took his hands away from the side of the reservoir.

"Hello, Lawler."

The priest was a compact, austere-looking man, balding and clean-shaven, who might have been any age at all between forty-five and sixty. He was thin, as if all the flesh had been sweated off him, with a long oval face and a strong, bony nose. His eyes, set deep in their sockets, were a chilly light blue and his skin was very pale, almost bleached-looking, though a steady diet of the maritime-derived things that people ate on Hydros was starting to give him the dusky sea-tinged complexion that the old-time settlers had: the algae cropping out in the skin, so to speak.

Lawler said, "The reservoir's extremely sturdy. Believe me, Father. I've lived here all my life and that reservoir hasn't burst its walls even once. We couldn't afford to let that happen."

Quillan laughed self-consciously. "That isn't what I was doing, actually. I was embracing its strength, as a matter of fact."

"I see."

"Feeling all that contained power. Experiencing a sense of great force under restraint—tons of water held back by nothing more than human will and determination."

"And a lot of sea-bamboo and hooping, Father. Not to mention God's grace."

"That too," Quillan said.

Very peculiar, hugging the reservoir because you wanted to experience its strength. But Quillan was always brought curious things like that. There seemed to be some kind of desperate hunger in the man: for grace, for mercy, for surrender to something larger than himself. For faith itself, perhaps. It seemed odd to Lawler that a man who claimed to be a priest would be so needy of spirit.

He said, "My great-great-grandfather designed it, you know. Harry Lawler, one of the Founders. He could do anything he put his mind to, my grandfather used to say. Take out your appendix, sail a ship from one island to another, design a reservoir," Lawler paused. "He was sent here for murder, old Harry was. Manslaughter, I should say."

"I didn't know. So your family has always lived on Sorve?"

"Since the beginning. I was born here. Just about a hundred eighty meters from where we're standing, actually." Lawler slapped the side of the reservoir affectionately. "Good old Harry. We'd be in real trouble here without this. You see how dry our climate is."

"I'm starting to find out," said the priest. "Doesn't it ever rain here at all?"

"Certain times of the year," Lawler said. "This isn't one of the times. You won't see any rain around here for another nine, ten months. That's why we took care to build our reservoirs so that they wouldn't spring any leaks."

Water was scarce on Sorve: the kind of water that humans could use, at any rate. The island traveled through arid territory most of the year. That was the work of the inexorable currents. The floating islands of Hydros, though they drifted more or less freely in the sea, were nevertheless penned for decades at a time within clearly defined longitudinal belts by powerful ocean currents, strong as great rivers. Every year each island carried out a rigidly defined migration from one pole to the other and back again; each pole was surrounded by a vortex of swift water that seized the incoming islands, swung them around, and sent them off toward the opposite end of the planet. But though the islands passed through every latitudinal belt in their annual north-south migrations, east-west fluctuations were minimal because of the force of the prevailing currents. Sorve, in its endless traveling up and down the world, had stayed between the fortieth and sixtieth degrees of west longitude as long as Lawler could remember. That seemed basically to be an arid belt in most latitudes. Rain was infrequent except when the island was moving through the polar zones, where heavy downfalls were the rule.

The almost perpetual droughts were no problem for the Gillies, who were constructed for drinking seawater

anyway. But they made existence complicated for the humans. Water rationing was a routine fact of life on Sorve. There had been two years—when Lawler was twelve, and again when he was twenty, the dark year of his father's death—when freakish rainfall had pelted the island for weeks without ceasing, so that the reservoirs had overflowed and the rationing had been abandoned. That had been an interesting novelty for the first week or so, each time, and then the unending downpours, the gray days and the rank smell of mildew, had become a bore. On the whole Lawler preferred drought: he was accustomed to it, at least.

Quillan said, "This place fascinates me. It's the strangest world I've ever known."

"I could say the same thing, I suppose."

"Have you traveled much? Around Hydros, I mean?"

"I was on Thibeire Island once," Lawler said. "It came very close, floated up right out there in the harbor, and a bunch of us took a coracle over to it and spent the whole day there. I was fifteen, then. That's the only time I've been anywhere else." He gave Quillan a wary glance. "But you're a real traveler, I understand. They tell me you've seen quite a chunk of the galaxy in your day."

"Some," Quillan said. "Not all that much. I've been to seven worlds altogether. Eight, counting this one."

"That's seven more than I'll ever see."

"But now I've reached the end of the line."

"Yes," Lawler said. "That you certainly have."

Offworlders who came to live on Hydros were beyond Lawler's comprehension. Why did they do it? To let yourself be stuffed into a drop-capsule on Sunrise, next door in the sky just a dozen or so million kilometers away, and be flipped out into a landing orbit that would dump you down in the sea near one of the floating islands—knowing that you could never leave Hydros again? Since the Gillies refused to countenance the building of a spaceport anywhere on Hydros, coming here was strictly a one-way journey, and everyone out there understood that. But still they came—not many, but a steady trickle of them, choosing to live forever after as castaways on a shoreless shore, on a world without trees or flowers, birds or insects or green fields of grass, without furry animals or hooved ones—without ease, without comfort, without any of the benefits of modern technology, awash on the ceaseless tides, drifting from pole to pole and back again aboard islands made of wickerwork on a world fit only for creatures with fins or flippers.

Lawler had no idea why Quillan had wanted to come to Hydros, but it wasn't the thing you asked someone. A kind of penance, perhaps. An act of self-abnegation. Certainly it wasn't to perform church functions. The Church of All Worlds was a schismatic post-Papal Catholic sect without any adherents, so far as Lawler knew, anywhere on the planet. Nor did the priest seem to be here as a missionary. He had made no attempts to make converts since his arrival on Sorve, which was just as well, for religion had never been a matter of interest among the islanders. "God is very far away from us on Sorve Island," Lawler's father had liked to say.

Quillan looked somber for a moment, as though contemplating the realities of his having stranded himself on Hydros for the rest of his days. Then he said, "You don't mind always staying in the same place? You don't ever get restless? Curious about the other islands?"

"Not really," Lawler said. "Thibeire was pretty much like Sorve, I thought. The same general layout, the same general feel. Only there was nobody there that I knew. If one place is just like another, why not stay in the place you know, among the people you've always lived with?" His eyes narrowed. "It's the other *worlds* I wonder about. The dry-land ones. Actual solid planets. I wonder what it's like to go and go for days and never see open water even once, to be on a hard surface all the time, not just an island but a whole huge continent where you can't see right across from one end of the place where you live to the other, an enormous land mass that has cities and mountains and rivers on it. Those are just empty words to me. Cities. Mountains. I'd like to know what trees are like, and birds, and plants that have flowers. I wonder about Earth, you know? I dream sometimes that it still exists, that I'm actually on it, breathing its air, feeling its soil under my feet. Getting it under my fingernails. There's no soil anywhere on Hydros, do you realize that? Only the sand of the sea bottom."

Lawler glanced quickly at the priest's hands, at his fingernails, as though they might still have the black dirt of Sunrise under them. Quillan's eyes followed Lawler's, and he smiled but said nothing.

Lawler said, "I overheard you talking last week with Delagard at the community center, about the planet you lived on before you came here, and I still remember every word of what you said. How the land there seems to go on forever, first grassland and then a forest and then mountains and a desert on the far side of the mountains. And the whole time I sat there trying to imagine what all those things really looked like. But of course I'll never know. We can't get to other worlds from here, eh? For us they might just as well not exist. And since every place on Hydros is the same as every other place, I'm not inclined to go roaming."

"Indeed," said Quillan gravely. After a moment he added, "That isn't typical, is it, though?"

"Typical of whom?"

"The people who live on Hydros. Never traveling anywhere, I mean."

"A few of us are wanderers. They like to change islands every five or six years. Some aren't like that. Most aren't, I'd say. At any rate I'm one of the ones who isn't."

Quillan considered that.

"Indeed," he said again, as though processing some intricate datum. He appeared to have exhausted his run of questions for the moment. Some weighty conclusion seemed about to come forth.

Lawler watched him without great interest, politely waiting to hear what else Quillan might have to say.

But a long moment passed and Quillan was still silent. Evidently he had nothing further to say after all.

"Well," Lawler said, "time to open up the shop, I guess."

He began to walk up the path toward the vaarghs.

3

As he drew near his vaargh Lawler saw that a woman with long, straight dark hair was waiting for him outside.

There were thirty vaarghs in the group where Lawler lived, and another sixty or so, not all of them inhabited, down near the tip of the island. They were irregular gray structures, asymmetrical but roughly pyramidal in shape, hollow within, twice the height of a tall man and tapering to a blunt drooping point. Near their summits they were pierced with windowlike openings, angled outward so that rain would enter only in the most driving of storms, and then with difficulty. Some kind of thick, rugged cellulose, puckered and coarse—something drawn from the sea; where else but from the sea?—was what they had been made from, evidently very long ago. The stuff was remarkably solid and durable. If you struck a vaargh with a stick, it rang like a metal bell. The first settlers had found them already here when they arrived and had put them to use as temporary housing; but that had been more than a hundred years before, and the islanders were still living in them. Nobody knew why they were here. There were clusters of vaarghs on nearly every island: the abandoned nests, perhaps, of some extinct creature that had once shared the islands with the Gillies. The Gillies lived in dwellings of an entirely different nature, casual seaweed shelters that they discarded and replaced every few weeks, whereas these things seemed as close to imperishable as anything was on this watery world. "What are they?" the early settlers had asked, and the Gillies had replied, simply, "They are vaarghs." What "vaarghs" meant was anybody's guess. Communicating with the Gillies, even now, was a haphazard business.

When Lawler came closer he saw that the woman waiting for him was Sundira Thane. Like the priest, she too was a newcomer to Sorve, a tall, serious young woman who had arrived from Kentrup Island a few months before as a passenger aboard one of Delagard's ships.

"Am I too early?" she asked.

"Not if you don't think you are. Come in." The entrance to Lawler's vaargh was a low triangular gash in the wall, like a doorway for gnomes. He crouched and shuffled through it. She came crouching and shuffling after him. She was nearly as tall as he was. She seemed tense, withdrawn, preoccupied.

Pale morning light came slanting into the vaargh. At ground level thin partitions made of the same material as the exterior divided it into three rooms, each small and sharp-angled—his medical office, his bedroom, and an antechamber that he used as a sitting-room.

It was still only about seven in the morning. Lawler was getting hungry. Breakfast would have to wait a while longer, he realized. But he casually shook a few drops of numbwed tincture into a mug, added a little water, and sipped it as though it were nothing but some

medicine he prescribed for his own use every morning. In a way it was.

The drug's powerful alkaloids had completed their swift circuit of his bloodstream almost at once and entered his brain. He felt the tensions of the dawn encounters ebbing from his spirit.

"I've been coughing," Thane said. "It won't stop."

And virtually on cue she broke into a volley of rough, hacking rasps. On Hydros a cough might be as trivial a thing as it was anywhere else; but it might also be something serious. All the islanders knew that.

There was a parasitic waterborne fungus, usually found in northern temperate waters, which reproduced by infesting various forms of marine life with the spores that it released into the atmosphere in dense black clouds. A spore, when inhaled by some aquatic mammal as it came to the surface to breathe, lodged in its host's warm gullet and sprouted immediately, sending forth a dense tangle of bright red hyphae that had no difficulty penetrating lungs, intestines, stomach, even brain tissue. The host's interior became a tightly packed mass of vivid scarlet wires. The wires were looking for the copper-based respiratory pigment, hemocyanin. Most of the sea creatures of Hydros had hemocyanin in their blood, which gave it a bluish color. The fungus seemed to have some use for hemocyanin too.

Death by fungus infestation was slow and horrible. The host, bloated with gases excreted by the invader and floating helplessly, would eventually succumb, and soon after that the fungus would extrude its mature fruiting structure through an opening it had carved in the host's abdomen. This was a globular woody mass that shortly would split apart to release the new generation of adult fungi, which in the course of time would produce fresh clouds of spores, and so the cycle went.

Killer-fungus spores were capable of taking root in human lungs, a situation of no value to either party: humans were unable to provide the fungus with the hemocyanin it desired and the fungus found it necessary to invade and consume every region of the host's body during the course of its search, a useless expenditure of energy.

The first symptom of fungus infestation in a human was a cough that refused to go away.

"Let's get a little information about you," Lawler said. "And then we'll check this thing out."

He took a fresh records folder from a drawer and scrawled Sundira Thane's name on it.

"Your age?" he asked.

"Thirty-one."

"Birthplace?"

"Khamsilaine Island."

He glanced up. "That's on Hydros?"

"Yes," she said, a little too irritably. "Of course." Another siege of coughing took her. "You've never heard of Khamsilaine?" she asked, when she could speak again.

"There are a lot of islands. I don't get around much. I've never heard of it, no. What sea does it move in?"

"The Azure."

"The Azure," Lawler said, marveling. He had only the

haziest idea where the Azure Sea might be. "Imagine that. You've really covered some territory, haven't you?" She offered no reply. He said, after a moment, "You came here from Kentrup a little while back, is that right?"

"Yes." More coughing.

"How long did you live there?"

"Three years."

"And before that?"

"Eighteen months on Velmise. Two years on Shaktan. About a year on Simbalimak." She looked at him coldly and said, "Simbalimak's in the Azure Sea also."

"I've heard of Simbalimak," he said.

"Before that, Khamsilaine. So this is my sixth island."

"Ever married?"

"No."

He noted that down too. The general distaste for marrying within one's own island's population had led to a custom of unofficial exogamy on Hydros. Single people looking to get married usually moved to some other island to find a mate. When a woman as attractive as Sundira Thane had done as much moving around as she had without ever marrying anyone, it meant either that she was very particular or else that she wasn't looking at all.

Lawler suspected that she simply wasn't looking. The only man he had noticed her spending time with, in her few months on Sorve, was Gabe Kinverson, the fisherman. The moody, untalkative, crag-faced Kinverson was strong and rugged and, Lawler supposed, interesting in an animal sort of way, but he wasn't the kind of man that Lawler imagined a woman like Sundira Thane would want to marry, assuming that marriage was what she was after. And in any case Kinverson had never been the marrying sort himself.

"When did this coughing start?" he asked.

"Eight, ten days ago."

"You ever experience anything like it before?"

"No, never."

"Fever, pains in the chest, chilly sensations?"

"No."

"Does any sputum come up when you cough? Or blood?"

"Sputum? Fluid, do you mean? No, there hasn't been any sort of—"

She went into yet another coughing fit, the worst one yet. Her eyes grew watery, her cheeks reddened, her whole body seemed to shake. Afterward she sat with her head bowed forward between her shoulders, looking weary and miserable.

Lawler waited for her to catch her breath.

She said finally, "We haven't been in the latitudes where killer fungus grows. I keep telling myself that."

"That doesn't signify, you know. The spores travel thousands of kilometers on the wind."

"Thanks a lot."

"You don't seriously think you've got killer fungus, do you?"

She looked up, almost glaring at him. "Do I know? I might be full of red wires from my chest to my toes, and how would I be able to tell? All I know is that I can't stop coughing. You're the one who can tell me why."

"Maybe," Lawler said. "Maybe not. But let's have a look. Get your shirt off."

He drew his stethoscope from a drawer.

It was a preposterously crude instrument, nothing more than a cylinder of sea-bamboo twenty centimeters long to which a pair of plastic eardrums at the ends of two flexible tubes had been affixed. Lawler had next to nothing in the way of modern medical equipment at his service, scarcely anything, in fact, that a doctor even of the twentieth or twenty-first century would have regarded as modern. He had to make do with primitive things, medieval equipment. An X-ray scan could have told him in a couple of seconds whether she had a fungus infestation. But where would he get an X-ray scanner? On Hydros there was so little contact with the greater universe beyond the sky, and no import-export trade whatever. They were lucky to have any medical equipment here at all. Or any doctors, even half-baked ones like him. The human settlement here was inherently impoverished. There were so few people, such a shallow reservoir of skills.

Stripped to the waist, she stood beside his examining table, watching him as he slipped the stethoscope's collar around his neck. She was very slender, almost too thin; her arms were long, muscular the way a thin woman's arms are muscular, with flat, hard little muscles; her breasts were small and high and far apart. Her features were compressed in the center of her wide strong-boned face, small mouth, thin lips, narrow nose, cool gray eyes. Lawler wondered why he had thought she was attractive. Certainly there was nothing conventionally pretty about her. It's the way she carries herself, he decided: the head thrust forward a little atop the long neck, the strong jaw outthrust, the eyes quick, alert, busy. She seemed vigorous, even aggressive. To his surprise he found himself aroused by her, not because her body was half bare—there was nothing uncommon about nudity, partial or otherwise, on Sorve Island—but because of the vitality and strength she projected.

It was a long time since he had been involved in any way with any woman. These days the celibate life seemed ever so much the simplest way, free of pain and mess once you got past the initial feelings of isolation and bleakness, if you could, and he eventually had. He had never had much luck with liaisons, anyway. His one marriage, when he was twenty-three, had lasted less than a year. Everything that had followed had been fragmentary, casual, incidental. Pointless, really.

The little flurry of endocrine excitement passed quickly. In a moment he was professional again, Dr. Lawler making an examination.

He said, "Open your mouth, very very wide."

"There isn't all that much to open."

"Well, do your best."

She gaped at him. He had a little tube with a light on it, something handed down to him by his father; the tiny battery had to be recharged every few days. He put it down her throat and peered through it.

"Am I full of red wires?" she asked, when he withdrew it.

"Doesn't look that way. All I see is a little soreness in the vicinity of the epiglottis, nothing very unusual."

"What's the epiglottis?"

"The flap that guards your glottis. Don't worry about it."

He put the stethoscope's end against her sternum and listened.

"Can you hear the wires growing in there?"

"Shhh."

Lawler moved the cylinder slowly around the hard, flat area between her breasts, listening to her heart, and then out along the rib cage.

"I'm trying to pick up audible evidence of inflammation of the pericardium," he told her. "Which is the sac surrounding the heart. I'm also listening for the sounds produced in the air tubes and sacs of your lungs. Take a deep breath and hold it. Try not to cough."

Instantly, unsurprisingly, she began to cough. Lawler held the stethoscope to her as the coughing went on and on. Any information was information. Eventually the coughing stopped, leaving her red-faced and weary again.

"Sorry," she said. "It was like when you said, Don't cough, that it was a signal of some kind to my brain and I—"

She began to cough again.

"Easy," he said. "Easy."

This time the attack was shorter. He listened, nodded, listened again. Everything sounded normal.

But he had never had a case of killer-fungus infestation to handle. All Lawler knew about it was what he heard from his father long ago or learned by talking to doctors from other islands. Would the stethoscope really be able to tell him, he wondered, what might or might not have taken up residence in her lungs?

"Turn around," he said.

He listened to the sounds of her back. He had her raise her arms and pressed his fingers against her sides, feeling for alien growths. She wriggled as though he were tickling her. He drew a blood sample from her arm, and sent her behind the screen in the corner of the room to give him a urine specimen. Lawler had a microscope of sorts, which Sweyner the toolmaker had fashioned for him. It had no more resolution than a toy, but perhaps if there were something living within her he would be able to see it anyway.

He knew so little, really.

His patients were a daily reproach to his skills. Much of the time he simply had to bluff his way. His medical knowledge was a feeble mix of hand-me-downs from his eminent father, desperate guesswork, and hard-won experience, gradually accumulated at his patients' expense. Lawler had been only halfway through his medical education when his father died and he, at not quite twenty, found himself doctor to the island of Sorve. Nowhere on Hydros was there real medical training to be had, or anything that could remotely be considered a modern medical instrument, or any medicines other than those he could compound himself out of marine life-forms, imagination, and prayers. In his late and great

father's time some charitable organization on Sunrise had dropped packages of medical supplies once in a while, but the packages were few and far between and they had to be shared among many islands. And they had stopped coming long ago. The inhabited galaxy was very large; nobody thought much about the people living on Hydros any more. Lawler did his best, but his best often wasn't good enough. When he had the chance, he consulted with doctors on other islands, hoping to learn something from them. Their medical skills were just as muddy as his, but he had learned that sometimes by exchanging ignorances with them he could generate a little spark of understanding. Sometimes.

"You can put your shirt back on," Lawler said.

"Is it the fungus, do you think?"

"All it is is a nervous cough," he told her. He had the blood sample on the glass slide, now, and was peering at it through the single eyepiece. What was that, red on red? Could they be scarlet mycelial fibers coiling through the crimson haze? No. No. A trick of his eye. This was normal blood. "You're perfectly all right," he said, looking up. She was still bare-breasted, her shirt over her skinny arm, frozen in suspense. Her expression was a suspicious one. "Why do you need to think you've got a horrible disease?" Lawler asked. "All it is is a cough."

"I need to think I *don't* have a horrible disease. That's why I came to you."

"Well, you don't." He hoped to God he was right. There was no real reason to think he wasn't.

He watched her as she dressed, and found himself wondering whether there might actually be something going on between her and Gabe Kinerson. Lawler, who had little interest in island gossip, hadn't considered that possibility before, and, considering it now, he was startled to observe how uncomfortable he was with it.

He said, "Have you been under any unusual stress lately?"

"Not that I'm aware of, no."

"Working too hard? Sleeping badly? Love affair that isn't going well?"

She shot him a peculiar look. "No. On all three."

"Well, sometimes we get stressed out and we don't even notice it. The stress becomes built-in, part of our routine. What I'm saying is that I think this is a nervous cough."

"That's all?" She sounded disappointed.

"You *want* it to be a killer-fungus infestation? All right, it's a killer-fungus infestation. When you reach the stage where the wiry red threads are coming out your ears, cover your head in a sack so you don't upset your neighbors. They might think they were at risk, otherwise. But of course they won't be, not until you begin giving off spores, and that'll come much later."

She laughed. "I didn't know you were such a comedian."

"I'm not." Lawler took her hand in his, wondering whether he was trying to be provocative or simply being avuncular, his Good Old Doc Lawler persona. "Listen," he said, "I can't find anything wrong with you physically. So the odds are the cough is just a nervous

habit you picked up somehow. Once you start doing it, you irritate the throat linings, the mucosa and such, and the cough starts feeding on itself and gets worse and worse. Eventually it'll go away of its own, but eventually can be a long time. What I'm going to give you is a neural damper, a tranquilizer drug, something to calm your cough reflex down long enough to let the mechanical irritation subside, so that you'll stop sending cough signals to yourself."

That came as a surprise to him too, that he would share the numbweed with her. He had never said a word about it to anyone, let alone prescribed it for a patient. But giving her the drug seemed to be the right thing to do. He had enough to spare.

He took a small dry storage gourd from his cabinet, poured a couple of centiliters of the pink fluid into it, and capped it with a twist of sea-plastic.

"This is a drug I derived myself from numbweed, which is one of the algae that grows in the lagoon. Give yourself five or six drops of it every morning, no more, in a glass of water. It's strong stuff." He studied her with a close, searching look. "The plant is full of potent alkaloids that could knock you for a loop. Just nibble one frond of it and you'd be unconscious for a week. Or maybe forever. This is a highly diluted extract, but be careful with it anyway."

"You had a little of it yourself, didn't you, right when we first came in here?"

So she'd been paying attention after all. Quick eyes, a sharp observer. Interesting.

"I get nervous too now and then," Lawler said.

"Do I make you nervous?"

"All my patients do. I don't really know much about medicine, and I'd hate for them to find that out." He forced a laugh. "No, that isn't true. I don't know as much about medicine as I should, but I know enough to manage. But I find that the drug calms me when I'm not having a good morning, and today didn't start off particularly well for me. It had nothing to do with you. Here, you might as well take your first dose right now."

He measured it out for her. She sipped carefully, uneasily, and made a wry face as the curious sweet taste of the alkaloids registered on her.

"You feel the effect?"

"Right away! Hey, good stuff!"

"Too good, maybe. A little insidious." He made notes on her dossier. "Five drops in a glass of water every morning, no more, and you don't get a refill until the first of the month."

"Aye, aye, sir!"

Her entire facial expression had changed; she looked much more relaxed now, the cool gray eyes warmer, almost twinkling, the lips not so tightly pursed, the tense cheek muscles allowed a little slack. She looked younger. She looked prettier. Lawler had never had a chance before to observe the effects of numbweed on anyone else. They were unexpectedly dramatic.

She said, "How did you discover this drug?"

"The Gillies use numbweed as a muscle relaxant when they're hunting meatfish in the bay."

"The Dwellers, you mean?"

The prissy correction caught Lawler by surprise. "Dwellers" was what the dominant native life-forms of Hydros called themselves. But "Gillies" was what anyone who had been on Hydros more than a few months called them, at least around here. Maybe the usage was different on the island where she was from, he thought, off in the Azure Sea. Or perhaps it was what the younger people were saying now. Usages changed. He reminded himself that he was ten years older than she was. But most likely she used the formal term out of respect, because she fancied herself a student of Gillic culture. What the hell: whichever way she liked it, he'd try to be accommodating.

"The Dwellers, yes," he said. "They tear off a couple of strands and wrap them around a chunk of bait and toss it to the meatfish, and when the meatfish swallow them they go limp and float helplessly to the surface. Then the Dwellers move in and harvest them without having to worry about those knifeblade-tipped tentacles. An old sailor named Jolly told me about it, when I was a boy. Later on I remembered it and went out to the harbor and watched them doing it. And collected some of the weed and experimented with it. I thought I might be able to use it as an anesthetic."

"And could you?"

"For meatfish, yes. I don't do much surgery on meatfish, though. What I found when I used it on humans was that any dose that was strong enough to be any good as an anesthetic also turned out to be lethal." Lawler smiled grimly. "My trial-and-error period as a surgeon. Mostly error. But I eventually discovered that an extremely dilute tincture was an extremely potent tranquilizer. As you now see. It's terrific stuff. We could market it throughout the galaxy, if we had any way of shipping anything anywhere."

"And nobody knows about this drug but you?"

"And the Gillies," he said. "Pardon me. The Dwellers. And now you. I don't get much call for tranquilizers here."

"You may get some now," she told him. "I think the Dwellers are about to make some trouble. They're pretty seriously annoyed with us."

"What about?" Lawler asked.

"I don't know. But something's definitely making them itchy. I went down to their end of the island last night and they were having a big conference. When they saw me they weren't at all friendly."

"Are they ever?"

"With me they are. But they wouldn't even talk with me last night. They wouldn't let me near them. And they were holding themselves in the posture of displeasure. You know anything about Dweller body-language? They were stiff as boards."

The divers, he thought. They must know about the divers. That has to be it. But it wasn't something that Lawler wanted to discuss right now, not with her, not with anyone.

"The thing about aliens," he said, "is that they're *alien*. Even when we think we understand them, we really

don't understand a damned thing. And I don't see any way around that problem. Listen, if the cough doesn't go away in two or three days, come back here and I'll run some more tests. But stop fretting about killer fungus in your lungs, okay? Whatever it is, it isn't that."

"That's good to hear," she said. She went over to the shelf where he kept his little collection of ancient artifacts. "Are all these little things from Earth?"

"Yes. My great-great-grandfather collected them."

"Really? Actual Earth things?" Gingerly she touched the Egyptian statuette and the bit of stone that had come from some important wall, Lawler forgot where. "Actual things that came from Earth. I've never seen any before. Earth doesn't even seem real to me, you know? It never has."

"It does to me," Lawler said. "But I know a lot of people who feel the way you do. Let me know about that cough, okay?"

She thanked him and went out.

And now for breakfast, Lawler told himself. Finally. A nice whiffish filet, and algae toast, and some freshly squeezed managordo juice.

But he had waited too long. He didn't have much appetite, and he simply nibbled at his meal.

A little while later a second patient appeared outside the vaargh. Brondo Katzin, who ran the island's fish market, had picked up a not-quite-dead arrowfish the wrong way and had a thick, glossy black spine five centimeters long sticking right through the middle of his left hand from one side to the other. "Imagine, being so dumb," the barrel-chested, slow-witted Katzin kept saying. "Imagine." His eyes were bugging with pain and his hand, swollen and glossy, looked twice its normal size. Lawler cut the spine loose, swabbed the wound all the way through to get the poison and other irritants out, and gave the fish-market man some gemberweed pills to ease the pain. Katzin stared at his puffed-up hand, ruefully shaking his head. "So dumb," he said again.

Lawler hoped that he had cleaned out enough of the trichomes to keep the wound from getting infected. If he hadn't, there was a good chance Katzin would lose the hand, or the whole arm. Practicing medicine was probably easier, Lawler thought, on a planet that had some land surface, and a spaceport, and something in the way of contemporary technology. But he did his best with what he had. Heigh-ho! The day was under way.

4

At midday Lawler came out of his vaargh to take a little break from his work. This had been his busiest morning in months. On an island with a total human population of just seventy-eight, most of them pretty healthy, Lawler sometimes went through whole days, or even longer, without seeing a single patient. On such days he might spend the morning wading in the bay, collecting algae of medicinal value. The algae-farmer Natim Gharkid often helped him, pointing out this or that useful plant. Or

sometimes he did nothing at all, strolled or swam or went out on the bay in a fishing boat or sat quietly watching the sea. But this wasn't one of those days. First there was Dana Sawtelle's little boy with a fever, then Marya Hain with cramps after eating too many crawlie-oysters last night, Nimber Tanimind suffering from a recurrence of his usual tremors and megrims, young Bard Thalheim with a badly sprained ankle as a result of some unwise hijinks on the slippery side of the seawall. Lawler uttered the appropriate spells and applied the most likely ointments and sent them all away with the customary reassurances and prognostications. Most likely they'd feel better in a day or so. The current Dr. Lawler might not be much of a practitioner, but Dr. Placebo, his invisible assistant, generally managed to take care of the patients' problems sooner or later.

Now, though, there was no one else waiting to see him and a little fresh air seemed like a good prescription for the doctor himself. Lawler stepped into the bright noontime sun, stretched, did a few pinwheels with his extended arms. He peered downslope toward the waterfront. There was the bay, friendly and familiar, its calm enclosed waters rippling gently. It looked wonderfully beautiful just now: a glassy sheet of luminous gold, a glowing mirror. The dark fronds of the varied sea flora waved lazily in the shallows. Farther out, occasional shining fins breached the glistening surface. A couple of Delagard's ships lolled by the shipyard pier, swaying gently to the rhythm of the easy tide. Lawler felt as though this moment of summer noon could go on forever, that night and winter would never come again. An unexpected feeling of peace and well-being infiltrated his soul: a gift, a bit of serendipitous joy.

"Lawler," a voice said from his left.

A dry frayed croak of a voice, a boneyard voice, a voice that was all ashes and rubble. It was a dismal burned-out unrecognizable wreck of a voice that Lawler recognized, somehow, as that of Nid Delagard.

He had come up along the southern path from the waterfront and was standing between Lawler's vaargh and the little tank where Lawler kept his current stock of freshly picked medicinal algae. He was flushed and rumpled and sweaty and his eyes looked strangely glassy, as though he had had a stroke.

"What the hell has happened now?" Lawler asked, exasperated.

Delagard made a wordless gaping movement with his mouth, like a fish out of water, and said nothing.

Lawler dug his fingers into the man's thick, meaty arm. "Can you speak? Come on, damn you. Tell me what's happened."

"Yeah. Yeah." Delagard moved his head from side to side in a slow, ponderous, pole-axed way. "It's very bad. It's worse than I ever imagined."

"What is?"

"Those fucking divers. The Gillies are really furious about them. And they're going to come down on us very hard. Very very *very* hard. It's what I was trying to tell you about this morning in the shed, when you walked out on me."

Lawler blinked a couple of times. "What in God's name are you talking about?"

"Give me some brandy first."

"Yeah. Yeah. Come inside."

He poured a strong jolt of the thick sea-colored liquor for Delagard, and, after a moment's consideration, a smaller drink for himself. Delagard put his away in a single gulp and held out the cup. Lawler poured again.

After a little while Delagard said, picking his way warily through his words as if struggling with some speech impediment, "The Gillies came to visit me just now, about a dozen of them. Walked right up out of the water down at the shipyard and asked my men to call me out for a talk."

Gillies? At the human end of the island? That hadn't happened in decades. Gillies never went farther south than the promontory where they had built their power plant. Never.

Delagard gave him a tortured look. "What do you want?" I said. Using the politest gestures, Lawler, everything very very courteous. I think the ones that were there were the big Gillie honchos, but how can you be sure? Who can tell one of them from the next? They looked important, anyway. They said, 'Are you Nid Delagard?' as if they didn't know. And I said I was, and then they grabbed me."

"Grabbed you?"

"I mean, physically grabbed me. Put their little funny flippers on me. Pushed me up against the wall of my own building and restrained me."

"You're lucky you're still around to talk about it."

"No kidding. I tell you, doc, I was scared shitless. I thought they were going to gut me and fillet me right there. Look, look here, the marks of their claws on my arm." He showed fading reddish spots. "My face is swollen, isn't it? I tried to pull my head away and one of them bumped me, maybe by accident, but look. Look. Two of them held me and a third one put his nose in my face and started telling me things, and I mean *telling* me, big booming noises, ooom whang hoooff theeeezt, ooom whang hooof theeezt. At the beginning I was so shaken up I couldn't understand any of it. But then it came clear. They said it again and again until they made sure I understood. An ultimatum, it was." Delagard's voice dropped into a lower register. "We've been thrown off the island. We have thirty days to clear ourselves out of here. Every last one of us."

Abruptly Lawler felt the ground disappearing beneath his feet.

"What?"

The other man's hard little brown eyes had taken on a frantic glitter. He signaled for more brandy. Lawler poured without even looking at the cup. "Any human remaining on Sorve when the time's up will be tossed into the lagoon and not allowed back up on shore. Any structures we've erected here will be demolished. The reservoir, the shipyard, these buildings here in the plaza, everything. Things we leave behind in the vaarghs go into the sea. Any ocean-going vessels we leave in the harbor will be sunk. We are terminated, doc. We are ex-

residents of Sorve Island. Finished, done for, gone."

Lawler stared, incredulous. A quick cycle of turbulent emotions ran through him: disorientation, depression, despair. Confusion assailed him. Leave Sorve? *Leave Sorve?*

He began to tremble. With an effort he got himself under control, fighting his way back to inner equilibrium.

Tightly he said, "Killing some divers in an industrial accident is definitely not a good thing to have done. But this is too much of an overreaction. You must have misunderstood what they were saying."

"Like shit I did. Not a chance. They made themselves very clear."

"We all have to go?"

"We all have to go, yes. Thirty days."

Am I hearing him correctly? Lawler wondered. Is any of this really happening?

"And did they give a reason?" he asked. "Was it the divers?"

"Of course it was," Delagard said in a low husky voice clotted by shame. "It was just like you said this morning. The Gillies always know everything that we do."

"Christ. Christ." Anger was beginning to take the place of shock. Delagard had casually gambled with the lives of everyone on the island, and he had lost. The Gillies had warned him: *Don't ever do that again, or we'll throw you out of here.* And he had done it again anyway.

"What a contemptible bastard you are, Delagard!"

"I don't know how they found out. I took precautions. We brought them in by night, we kept them covered until they were in the shed, the shed itself was locked—"

"But they knew."

"They knew," Delagard said. "They know everything, the Gillies. You screw somebody else's wife, the Gillies know about it. But they don't care. Not about that. You kill a couple of divers and they care like crazy."

"What did they tell you, the last time you had an accident with divers? When they warned you not to use divers again in your work, what did they say they'd do if they caught you?"

Delagard was silent.

"What did they tell you?" Lawler said again, pressing harder.

Delagard licked his lips. "That they'd make us leave Sorve," he muttered, once again looking down at his feet like a schoolboy being reprimanded.

"And you did it anyway. You did it anyway."

"Who would believe them? Jesus, Lawler, we've lived here for a hundred fifty years! Did they mind when we moved in? We dropped out of space and squatted right down on their fucking islands and did they say, 'Go away, hideous repellent four-limbed hairy alien beings?' No. No. They didn't give a crap."

"There was Shalikomo," Lawler said.

"A long time ago, that was. Before either of us was born."

"The Gillies killed a lot of people on Shalikomo. Innocent people."

"Different Gillies. Different situation."

Delagard pressed his knuckles together and made a

little popping sound with them. His voice began to rise in pitch and volume. He seemed very swiftly to be casting off the guilt and shame that had engulfed him. That was a knock he had, Lawler thought, the rapid restoration of his self-esteem. "Shalikomo's an exception," he said. The Gillies had thought there were far too many humans on Shalikomo, which was a very small island, and had told some of them to go; but the humans of Shalikomo had been unable to agree on who should go and who could stay, and hardly anyone left the island, and in the end the Gillies decided how many humans they would allow to live there among themselves and killed the rest. "It's ancient history," Delagard said.

"It was a long time ago, yes," said Lawler. "But what makes you think it can't all happen again?"

Delagard said, "The Gillies have never been particularly hostile anywhere else. They don't *like* us, but they don't stop us from doing whatever we want to do, so long as we stay down at our end of the island and don't get too numerous. We harvest kelp, we fish as much as we like, we build buildings, we hunt for meatfish, we do all sorts of things that aliens might be expected to resent, and not a word out of them. So if I was able to train a few divers to help me in oceanfloor metals recovery, which could only benefit the Gillies as well as us, why do you suppose I would think that they'd become so exercised over the death of a few animals in the line of work that they—they would—"

"The last straw, maybe," Lawler said. "The one that broke the camel's back."

"Huh? What the fuck are you saying?"

"Ancient Earth proverb. Never mind. What I'm saying is that for whatever reason, the diver thing pushed them over the edge and now they want us out of here."

Lawler closed his eyes for a moment. He imagined himself packing up his things, getting aboard a boat bound for some other island. It wasn't easy.

We are going to have to leave Sorve. We are going to have to leave Sorve. We are going to—

He realized that Delagard was talking.

"It was a stunner, let me tell you. I never expected it. Standing there up against the wall with two big Gillies holding my arms and another one smack up in front of my nose saying, *You all have to clear out in thirty days, you will vanish from this island or else.* How do you think I felt about that, doc? Especially knowing I was the one responsible for it. You said this morning I didn't have any conscience, but you don't know a damned thing about me. You think I'm a boor and a lout and a criminal, but what do you know, anyway? You hide away in here by yourself and drink yourself silly and sit there judging other people who have more energy and ambition in one finger than you have in your entire—"

"Knock it off, Delagard."

"You said I had no conscience."

"Do you?"

"Let me tell you, Lawler, I feel like shit, bringing this thing down on us. I was born here too, you know. You don't have to give me any snot-nose condescending First Family stuff, not me. My family's been here from

the beginning just like yours. We practically built this island, we Delagards. And now to hear that I'm being tossed out like a bunch of rotten meat, and that everyone else has to go too—" The tone of Delagard's voice changed yet again. The anger melted; he spoke more softly, earnestly, sounding almost humble. "I want you to know that I'll take full responsibility for what I've done. What I'm going to do is—"

"Hold it," Lawler said, raising one hand to cut him off. "You hear noise?"

"Noise? What noise? Where?"

Lawler inclined his head toward the door. Sudden shouts, harsh cries, were coming from the long three-sided plaza that separated the island's two groups of vaarhs.

Delagard said, nodding, "Yeah, now I hear it. An accident, maybe?"

But Lawler was already moving, out the door, heading for the plaza at a quick loping trot.

There were three weatherbeaten buildings—shacks, really, shanties, bedraggled lean-tos—on the plaza, one on each side of it. The biggest, along the upland side, was the island school. On the nearer of the two downslope sides was the little cafe that Lis Niklaus, Delagard's woman, ran. Beyond it was the community center.

A small knot of murmuring children stood outside the school, with their two teachers. In front of the community center, half a dozen of the older men and women were drifting about in a random, sunstruck way, moving in a ragged circle. Lis Niklaus had emerged from her cafe and was staring open-mouthed at nothing in particular. On the far side were two of Delagard's captains, squat, blocky Gospo Struvin and lean, long-legged Bamber Cadrell. They were at the head of the ramp that led into the plaza from the waterfront, holding on to the railing like men expecting an immediate tidal surge to strike. Between them, bisecting the plaza with his mass, the hulking fish-merchant Brondo Katzin stood like a huge stupefied beast, gazing fixedly at his unbalanced right hand as though it had just sprouted an eye.

There was no sign of any accident, any victim.

"What's going on?" Lawler asked.

Lis Niklaus turned toward him in a curiously monolithic way, swinging her entire body around. She was a tall, fleshy, robust woman with a great tangle of yellow hair and skin so deeply tanned that it looked almost black. Delagard had been living with her for five or six years, ever since the death of his wife, but he hadn't married her. Perhaps he was trying to protect his sons' inheritance, people supposed. Delagard had four grown sons, living on other islands, each of them on a different one.

She said hoarsely, sounding half strangled, "Bamber and Gospo just came up from the shipyard—they say the Gillies were here—that they said—they told us—they told Nid—"

Her voice trailed off in an incoherent sputter.

Shriveled little Mendy Tanamind, Nimber's ancient mother, said in a piping tone, "We have to leave! We have to leave!" She giggled shrilly.

"Nothing funny about it," Sandor Thalheim said. He was just as ancient as Mendy. He shook his head vehemently, making his dewlaps and wattles tremble.

"All because of a few animals," Bamber Cadrell said. "Because of three dead divers."

So the news was out already. Too bad, Lawler thought. Delagard's men should have kept their mouths shut until we figured out a way to handle this.

Someone sobbed. Mendy Tanamind giggled again. Brondo Katzin broke from his stasis and began bitterly to mutter, over and over, "The fucking stinking Gillies! The fucking stinking Gillies!"

"What's the trouble here?" Delagard asked, finally coming stumping up along the path from Lawler's vaarh.

"Your boys Bamber and Gospo took it upon themselves to carry the news," Lawler said. "Everybody knows."

"What? What? The bastards! I'll kill them!"

"It's a little too late for that."

Others were entering the plaza now. Lawler saw Gabe Kinversion, Sundria Thane, Father Quillan, the Sweyners. And more right behind them. They came crowding in, forty, fifty, sixty people, practically everybody. Even five or six of the Sisters were there, standing close together, a tight little female phalanx. Safety in numbers. Dag Tharp appeared. Marya and Gren Hain. Josc Yanez, Lawler's seventeen-year-old apprentice, who was going to be the island's next doctor someday. Onyos Felk, the mapkeeper. Natim Gharkid had come up from his algae beds, his trousers soaked to the waist. The news must have traveled through the whole community by this time.

Mostly their faces showed shock, astonishment, incredulity. Is it true? they were asking. Can it be?

Delagard cried out, "Listen, all of you, there's nothing to worry about! We're going to get this thing smoothed over!"

Gabe Kinversion came up to Delagard. He looked twice as tall as the shipyard owner, a great slab of a man, all jutting chin and massive shoulders and cold, glaring sea-green eyes. There was always an aura of danger about Kinversion, of potential violence.

"They threw us out?" Kinversion asked. "They really said we had to leave?"

Delagard nodded.

"Thirty days is what we have, and then out. They made that very clear. They don't care where we go, but we can't stay here. I'm going to fix everything, though. You can count on that."

"Seems to me you've fixed everything already," Kinversion said. Delagard moved back a step and glared at Kinversion as if bracing for a fight. But the sea-hunter seemed more perplexed than angry. "Thirty days and then get out," Kinversion said, half to himself. "If that don't beat everything." He turned his back on Delagard and walked away, scratching his head.

Perhaps Kinversion really didn't care, Lawler thought. He spent most of his time far out at sea anyway, by himself, preying on the kinds of fish that didn't choose to come into the bay. Kinversion had never been active in the life of the Sorve community; he floated through it

the way the islands of Hydros drifted in the ocean, aloof, independent, well defended, following some private course.

But others were more agitated. Brondo Katzin's delicate-looking little golden-haired wife Eliyana was sobbing wildly. Father Quillan attempted to comfort her, but he was obviously upset himself. The gnarled old Sweyners were talking to each other in low, intense tones. A few of the younger women were trying to explain things to their worried-looking children. Lis Niklaus had brought a jug of grapeweed brandy out of her cafe and it was passing rapidly from hand to hand among the men, who were gulping from it in a somber, desperate way.

Lawler said quietly to Delagard, "How exactly are you going to deal with all this? You have some sort of plan?"

"I do," Delagard said. Suddenly he was full of frenetic energy. "I told you I'd take full responsibility, and I meant it. I'll go back to the Gillies on my knees, and if I have to lick their hind flippers I will, and I'll beg for forgiveness. They'll come around, sooner or later. They won't actually hold us to this goddamned absurd ultimatum."

"I admire your optimism."

Delagard went on, "And if they won't back off, I'll volunteer to go into exile myself. Don't punish everyone, I'll tell them. Just me. I'm the guilty one. I'll move to Velmise or Salimil or any place you like, and you'll never see my ugly face on Sorve again, that's a promise. I'll work, Lawler. They're reasonable beings. They'll understand that tossing an old lady like Mendy here off the island that's been her home for eighty years isn't going to serve any rational purpose. I'm the bastard, I'm the murderous diver-killing villain, and I'll go if I have to, though I don't even think it'll come down to that."

"You may be right. Maybe not."

"I'll crawl before them if I have to."

"And you'll bring one of your sons over to run the shipyard if they make you leave here, won't you?"

Delagard looked startled. "Well, what's wrong with that?"

"They might think you weren't all that sincere about agreeing to leave. They might think one Delagard was the same as the next."

"You say it might not be good enough for them, if I'm the only one to go?"

"That's exactly what I'm saying. They might want something more than that from you."

"Like what?"

"What if I told you they'd pardon the rest of us provided you left and agreed that you *and* your family would never set foot on Sorve again, and that the entire Delagard shipyard would be torn down?"

Delagard's eyes grew very bright. "No," he said.

"They wouldn't ask that!"

"They already have. And more."

"But if I go, if I really go—if my sons pledge never to harm a diver again—"

Lawler turned away from him.

For Lawler the first shock was past; the simple phrase *We are going to have to leave Sorve* had incorporated it-

self in his mind, his soul, his bones. He was taking it very calmly, all things considered. He wondered why. Between one moment and the next, the existence on this island that he had spent his entire life constructing had been yanked from his grasp.

He remembered the time he had gone to Thibeire. How deeply disquieting it had been to see all those unfamiliar faces, to be unaware of names and personal histories, to walk down a path and not know what lay at the end of it. He had been glad to come home, after just a few hours.

And now he would have to go somewhere else and stay there for the rest of his life; he would have to live among strangers; he would lose all sense that he was a Lawler of Sorve Island, and would become just anybody, a newcomer, an off-islander, intruding in some new community where he had no place and no purpose. That should have been a hard thing to swallow. And yet after that first moment of terrifying instability and disorientation he had settled somehow into a kind of numbed acceptance, as though he were as indifferent to the eviction as Gabe Kinverson seemed to be, or Gharkid, that perversely free-floating man. Strange. Maybe it simply hasn't sunk in yet, Lawler told himself.

Sundira Thane came up to him. She was flushed and there was a sheen of perspiration on her forehead. Her whole posture was one of excitement and a kind of fierce self-satisfaction.

"I told you they were annoyed with us, didn't I? Didn't I? Looks like I was right."

"So you were," Lawler said.

She studied him for a moment. "We're really going to have to leave. I don't have the slightest doubt of it." Her eyes flashed brilliantly. She seemed to be glorying in all of this, almost intoxicated by it. Lawler remembered that this was the sixth island she had lived on so far, at the age of thirty-one. She didn't mind moving around. She might even enjoy it.

He nodded slowly. "Why are you so sure of that?"

"Because Dwellers don't ever change their minds.

When they say something they stick to it. And killing divers seems to be a more serious thing to them than killing meatfish or bangers. The Dwellers don't mind our going out into the bay and hunting for food. They eat meatfish themselves. But the divers are, well, different. The Dwellers feel very protective toward them."

"Yes," Lawler said. "I guess they do."

She stared straight into his eyes. She was nearly on eye level with him. "You've lived here a long time, haven't you, Lawler?"

"All my life."

"Oh. I'm sorry. This is going to be rough for you."

"I'll deal with it," he said. "Every island can use another doctor. Even a half-baked doctor like me." He laughed. "Listen, how's that cough doing?"

"I haven't coughed once since you gave me that dope."

"I didn't think you would."

Delagard suddenly was at Lawler's elbow again. Without apologizing for breaking in on his conversation with

Sundira, he said, "Will you come with me to the Gillies, doc?"

"What for?"

"They know you. They respect you. You're your father's son and that gives you points with them. They think of you as a serious and honorable man. If I have to promise to leave the island, you can vouch for me, that I mean it when I say I'll go away and never come back."

"They'll believe you without my help, if you tell them that. They don't expect any intelligent being to tell lies, even you. But that still won't change anything."

"Come with me all the same, Lawler."

"It's a waste of time. What we need to be doing is starting to plan the evacuation."

"Let's try it, at least. We can't be sure if we don't try."

Lawler considered that. "Right now?"

"After dark," Delagard said. "They don't want to see any of us now. They're too busy celebrating the opening of the new power plant. They got it going about two hours ago, you know. They've got a cable running from the waterfront to their end of the island and it's carrying juice."

"Good for them."

"I'll meet you down by the seawall at sunset, all right? And we'll go and talk to them together. Will you do that, Lawler?"

In the afternoon Lawler sat quietly in his vaargh, trying to comprehend what it would mean to have to leave the island, working at the concept, worrying at it. No patients came to see him. Delagard, true to his promise of the early morning, had sent some flasks of grapeweed brandy over, and Lawler drank a little, and then a little more, without any particular effect. Lawler thought of allowing himself another dose of his tranquilizer, but somehow that seemed not to be a good idea. He was tranquil enough as it was, right now: what he felt wasn't his usual restlessness, but rather a sodden dullness of spirit, a heavy weight of depression, for which the pink drops weren't likely to be of any use.

I am going to leave Sorve Island, he thought.

I am going to live somewhere else, on an island I don't know, among people whose names and ancestries and inner natures are absolute mysteries to me.

He told himself that it was all right, that in a few months he'd feel just as much at home on Thibeire, or Velmise, or Kaggeram, or whatever island it was that he ultimately settled on, as he did on Sorve. He knew that that wasn't true, but that was what he told himself, all the same.

Resignation seemed to help. Acceptance, even indifference. The trouble was that he couldn't stay on that numbed-down level consistently. From time to time a sudden flare of shock and bewilderment would hit him, a sense of intolerable loss, even of out-and-out fear. And then he had to start all over again.

When it began to grow dark Lawler left his vaargh and headed down to the seawall.

Two moons had risen, and a faint sliver of Sunrise

had returned to the sky. The bay was alive with twilight colors, long streaks of reflected gold and purple, fading quickly into the gray of night as he watched. The dark shapes of mysterious sea creatures moved purposefully in the shallow waters. It was all very peaceful: the bay at sundown, calm, lovely.

But then thoughts of the voyage that awaited him crept into his mind. Lawler looked outward beyond the harbor to the vastness of the unfriendly, inconceivable sea. How far would they have to sail before they found an island willing to take them in? A week's journey? Two weeks? A month? He had never been to sea at all, not even for a day. That time he had gone over to Thibeire, it had been a simple journey by coracle, just beyond the shallows to the other island that had come up so close by Sorve.

Lawler realized that he feared the sea. The sea was a great world-sized mouth, which he sometimes imagined must have swallowed up all of Hydros in some ancient convulsion, leaving nothing but the little drifting islands that the Gillies had created. It would swallow him too, if he set out to cross it.

Angrily he told himself that this was foolishness, that men like Gabe Kinverson went out into the sea every day and survived it, that Nid Delagard had made a hundred voyages between islands, that Sundira Thane had come to Sorve from an island in the Azure Sea, which was so far away that he had never heard of it. It would be all right. He would board one of Delagard's ships and in a week or two it would bring him to the island that would be his new home.

And yet—the blackness, the immensity, the surging power of the terrible world-spanning sea—

"Lawler?" a voice called.

He looked around. For the second time this day Nid Delagard stepped out of the shadows behind him.

"Come on," the shipyard owner said. "It's getting late. Let's go talk to the Gillies."

5

There were electric lights glowing in the Gillie power plant, just a little way farther along the curve of the shore. Other lights, dozens of them, maybe hundreds, could be seen blazing in the streets of Gillie-town beyond. The unexpected catastrophe of the expulsion had completely overshadowed the other big event of the day, the inauguration of turbine-driven electrical generation on Sorve Island.

The light coming from the power plant was cool, greenish, faintly mocking. The Gillies had a technology of sorts, which had reached an eighteenth or nineteenth century Earth-equivalent level, and they had invented a kind of light bulb, using filaments made from the fibers of the exceedingly versatile sea-bamboo plant. The bulbs were costly and difficult to make, and the big voltaic pile that had been the island's main source of power was clumsy and recalcitrant, producing electricity only in a sluggish, intermittent fashion and constantly breaking down. But now—after how many years of work? Five?

Ten?—the island's bulbs were being lit from a new and inexhaustible source, power from the sea, warm water from the surface converted to steam, steam making the generator's turbines turn, electricity streaming forth from the generator to light the lamps of Sorve Island.

The Gillies had agreed to let the humans at the other end of the island draw off some of the new power in return for labor—Sweyner would make light bulbs for them, Dann Henders would help with the stringing of the cable, and so forth. Lawler had been instrumental in setting up that arrangement, along with Delagard, Nicko Thalheim, and one or two others. That was the one little triumph of interspecies cooperation that the humans had been able to manage in recent years. It had taken about six months of slow and painstaking negotiation.

Delagard said, "We'll go straight to the honcho cabin, okay? No sense not starting at the top for this one."

Lawler shrugged. "Whatever you say."

They walked around the power plant and headed into Gillie territory, still following the shore of the bay. The island widened rapidly here, rising from low bayfront levels behind the seawall to a broad circular plateau that contained most of the Gillie settlement. On the far side of the plateau there was a steep drop where the island's thick wooden sea-bulwark descended in a straight sheer line to the dark ocean far below.

The Gillie village was arrayed in an irregular circle, the most important buildings in the center, the others strung raggedly along the periphery. The main difference between the inner buildings and the outer ones seemed to be one of permanence: the inner ones, which appeared to have ceremonial uses, were constructed of the same wood-kelp timber that the island itself was built from, and the outer ones, in which the Gillies lived, were slapdash tentlike things made out of moist green seaweed wrapped loosely over sea-bamboo poles. They gave off a ghastly odor of rot as the sun baked them, and when they reached a certain degree of dryness the seaweed coverings were stripped away and replaced with fresh ones. What appeared to be a special caste of Gillies was constantly at work tearing down the huts and building new ones.

It would take about half a day to walk completely across the Gillie end of the island. By the time Lawler and Delagard had entered the inner circle of the village, Sunrise had set and the Hydros Cross was bright in the sky.

"Here they come," Delagard said. "Let me do the talking, first. If they start getting snotty with me, you take over. I don't mind if you tell them what a shit you think I am. Whatever works."

"Do you really think anything's going to work?"

"Shh. I don't want to hear you talking like that."

Half a dozen Gillies—males, Lawler guessed—were approaching from the innermost part of the village. When they were ten or twelve meters away they halted and arranged themselves in front of the two humans in a straight line.

Delagard raised his hands in the gesture that meant, "We come in peace." It was the universal humans-to-Gillies greeting. No conversation ever began without it.

The Gillies were now supposed to reply with the futuristic wheezing sounds that meant, "We accept you as peaceful and we await your words." But they didn't say a thing. They simply stood there and stared.

"I don't have a good feeling about this, do you?" Lawler said quietly.

"Wait. Wait."

Delagard made the peace gesture again. He went on to make the hand-signals that meant, "We are your friends and regard you with the highest respect."

One of the Gillies emitted what sounded like a fart.

Their glittering little yellow eyes, set close together at the base of their small heads, studied the two humans in what seemed like an icy and indifferent way.

"Let me try," Lawler murmured.

He stepped forward. The wind was blowing from behind the Gillies: it brought him their damp heavy musky smell, mingled with the sharp reek of rotting seaweed from their ramshackle huts.

He made the We-come-in-peace sign. That produced no response, nor did the cognate We-are-your-friends one. After an appropriate pause he proceeded to make the signal that meant, "We seek an audience with the powers that reign."

From one of the Gillies came the farting sound again. Lawler wondered if it was the same Gillie that had rumbled and snorted at him so menacingly in the early hours of the day, down by the power plant.

Delagard offered I-ask-forgiveness-for-an-unintended-transgression. Silence: cold indifferent eyes remotely watching.

Lawler tried How-may-we-atone-for-departure-from-right-conduct. He got nothing back.

"The lousy fuckers," Delagard muttered. "I'd like to put a spear right through their fat bellies."

"They know that," Lawler said. "That's why they don't want to dicker with you."

"I'll go away. You talk to them by yourself."

"If you think it's worth trying."

"You have a clean record with them. Remind them who you are. Who your father was and what he did for them."

"Any other suggestions?" Lawler asked.

"Look, I'm just trying to be helpful. But go on, do it any way you like. I'll be at the shipyard. Stop off there when you get back and let me know how it goes."

Delagard slipped off into the darkness.

Lawler took a few steps closer to the six Gillies and began all over with the initiating gesture. Next he identified himself: Valben Lawler, doctor, son of Bernat Lawler the doctor. The great healer whom they surely remembered, the man who had freed their young ones from the menace of fin-rot.

He felt the strong irony of it: this was the opening of the speech he had spent half the night rehearsing in his sleepless mind. He was getting a chance to deliver it after all. In the context of a very different situation, though.

They looked at him without responding.

At least they didn't fart this time, Lawler thought.

He signaled, "We are ordered to leave the island. Is this so?"

From the Gillie on the left came the deep souging tone that meant an affirmative.

"That brings us great sorrow. Is there any way that we can cause this order to be withdrawn?"

Negative, boomed the Gillie on the right.

Lawler stared at them hopelessly. The wind picked up, flinging their heavy odor into his face by the bucketful, and he fought back nausea. Gillies had never seemed other than strange and mysterious to him, and a little repellent. He knew that he should take them for granted, simply one aspect of the world where he had always lived, like the ocean or the sky. But for all of their familiarity they remained, to him, creatures of another creation. Star-things. Aliens: us and them, humans and aliens, no kinship. Why was that? he wondered. I'm as much a native of this world as they are.

He held his ground and told them, "It was simply an unfortunate accident that those divers died. There was no malice involved."

Boom. Wheeze. Hwsssh.

Meaning: We are not interested in why it happened, only that it happened at all.

Behind the six Gillies, bleak greenish lights flashed on and off, illuminating curious structures—Statues? Machines? Idols?—that occupied the open space at the center of the village, strange lumps and knobs of metals that had been patiently extracted from the tissues of small sea creatures and assembled into random-looking, rust-caked heaps of junk.

"Delagard promises never to use divers again," Lawler told the Gillies, cajoling them now, looking hopefully for an opening.

Wheeze. Boom. Indifference.

"Won't you tell us how we can make things good again? We regret what happened. We regret it intensely." No response. Cold yellow eyes, staring, aloof.

This is idiocy, Lawler thought. It's like arguing with the wind.

"Damn it, this is our *home*!" he cried, matching the words with furious equivalent gestures. "It always has been!"

Three rumbling tones, descending in thirds.

"Find another home?" Lawler asked. "But we love this place! I was born here. We've never done harm to you before, any of us. My father—you knew my father, he was helpful to you when—"

The farting sound again.

It meant exactly what it sounded like, Lawler thought.

There was no sense in going on. He understood fully the futility of it. They were losing patience with him. Soon would come the rumbling, the snorting, the anger. And then anything might happen.

With a wave of a flipper one of the Gillies indicated that the meeting was at its end. The dismissal was unmistakable.

Lawler made a gesture of disappointment. He signaled sadness, anguish, dismay.

To which one of the Gillies replied, surprisingly, with

a quick rolling phrase that might almost have been one of sympathy. Or was that only his optimistic imagination? Lawler couldn't be sure. And then, to his amazement, the creature stepped out of the line and came shuffling toward him with unexpected speed, its flipper-arms extended. Lawler was too startled to move. What was this? The Gillie loomed over him like a wall. Here it comes, he thought, the onslaught, the casual lethal outburst of irritation. He stood as though rooted. Some frantic impulse toward self-preservation shrieked within him, but he couldn't find the will to try to flee. The Gillie caught him by the arm and pulled him close and enfolded him with its flippers in a tight, smothering embrace. Lawler felt the sharp curved claws lightly digging into his flesh, gripping him with a strange, mystifying delicacy. He remembered the red marks Delagard had shown him.

All right. Do whatever you want. I don't give a damn.

Lawler had never been this close to a Gillie before.

His head was pressed against the Gillie's huge chest. He heard the Gillie heart beating in there, not the familiar human *lub-dub* but more of a *thum-thum-thum, thum-thum-thum*. A baffling Gillie brain was only a few centimeters from his cheek. Gillie reek flooded his lungs. He felt dizzy and sick—but, weirdly, not at all frightened. There was something so overpowering about having been swept into this bizarre Gillie-hug that there was no room in him for fear just now. The alien's nearness stirred some kind of whirling in his mind. A sensation as powerful as a winter storm, as powerful as the Wave itself, came raging up through the roots of his soul. The taste of seaweed was in his mouth. The salt sea was coursing through his veins.

The Gillie held him for a time, as if communicating something—*something*—that couldn't be expressed in words. The embrace was neither friendly nor unfriendly. It was beyond Lawler's understanding entirely. The grip of the strong arms was tight and rough, but apparently not meant to injure him. Lawler felt like a small child being hugged by some ugly, strange, unloving foster mother. Or like a doll clasped to the great beast's bosom.

Then the Gillie released him, pushing him away with a brusque little shove, and went shuffling back to rejoin the others. Lawler stood frozen, trembling. He watched as the Gillies, taking no further notice of him, swung ponderously about, moved away, set out on their return to their village. He stood looking after them for a long while, understanding nothing. The rank smell of the Gillie still clung to him. It seemed to him just then that the odor would stay with him forever.

They must have been saying goodbye, he decided finally.

That's it, yes. A Gillie farewell, a tender parting hug. Or not so tender, but a kiss-off, all the same. Does that make sense? No, not really. But neither does anything else. Let's call it a gesture of farewell, Lawler thought. And leave it at that.

The final days before sailing were bad ones. Everyone admitted the necessity to go, but not everybody had believed it would really happen, and now reality was closing in with terrible force. Lawler saw old women making piles of their possessions outside their vaarghs, staring blankly at them, rearranging them, carrying things inside and bringing other things out. Some of the women and a few of the men cried all the time, some of them quietly, some not so quietly. The sounds of hysterical sobbing could be heard all through the night. Lawler treated the worst cases with numbweed tincture. "Easy, there," he kept saying. "Easy, easy." Thom Lyonides was drunk three days straight, roaring and singing, and then he started a fight with Bamber Cadrell, saying that nobody was going to make him get on board one of those ships. Delagard came by with Gospo Struvin and said, "What the fuck is this," and Lyonides jumped at him, snarling and screeching like a lunatic. Delagard hit him in the face, and Struvin caught him around the throat and throttled him until he calmed down. "Put him on his ship," Delagard said to Cadrell. "Make sure he stays there until we sail."

On the next-to-last day, and the last day also, parties of Gillies came right down to the border between their territory and the human settlement and stood there watching in their inscrutable way, as if making sure the humans were making ready to clear out. Everyone on Sørve knew now that there would be no reprieve, no revocation of the order of expulsion. The last doubters, the last deniers, had had to cave in under the pressure of those fishy, staring, implacable eyes. Sørve was lost to them forever. That much was settled.

Just before the end, hours from departure, Lawler climbed

the island to its rearmost point, on the side opposite the bay, where the high bulwark faced the ocean. It was noon, and the water was ablaze with reflected light.

From his vantage point on the bulwark Lawler looked out across the open sea and imagined himself sailing on it, far from any shore. He wanted to find out if he still feared it, that endless world of water on which he would embark not very long from now.

No. No. All the fear seemed to have gone from him. Lawler stared into the distance and saw nothing but ocean, and that was all right. There wasn't anything to fear. He would be exchanging the island for a ship, which was nothing more than a miniature island, really. What was the worst-case possibility, then? That his ship would sink in a storm, he supposed, or be smashed by the Wave, and he'd die. All right: he had to die sooner or later. That wasn't news. But ships weren't lost at sea all that often.

What Lawler still felt, rather than fear of the voyage that lay ahead, was the occasional sharp stab of grief for all he would be leaving behind. The longing arose quickly and just as quickly went, unsatisfied.

But now, strangely, the things he was leaving behind began to leave him. As Lawler stood with his back to the settlement, staring into the great dark expanse of the water, they all seemed to depart on the breeze that was blowing past him out to sea: his awesome father, his gentle elusive mother, his almost forgotten brothers. His whole childhood, his coming of age, his brief marriage, his years as the island doctor, as the Dr. Lawler of his generation. Everything going away, suddenly. Everything. He felt weirdly light, as if he could simply mount the breeze and float through the air to some other island. All the shackles seemed to have broken. Everything that held him here had fallen from him in a moment. Everything. Everything. ♦

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